RUSS OLSON VOLUME 19A

DULUTH SUPERIOR TRACTION CO.

GENERAL HISTORY

Description

DULUTH-SUPERIOR TRACTION CO. “Twin Ports Electric Lines”

- DULUTH STREET RAILWAY
    - WOODLAND COMPANY
    - HIGHLAND IMPROVEMENT CO.
    - LAKESIDE RAILWAY CO.
    - PARK POINT TRACTION CO.

- SUPERIOR RAPID TRANSIT RY. CO.
    - Douglas County Street Railway

CORPORATE HISTORIES

DULUTH-SUPERIOR TRACTION CO.
"Twin Ports Electric Lines"

DULUTH STREET RAILWAY

Woodland Company

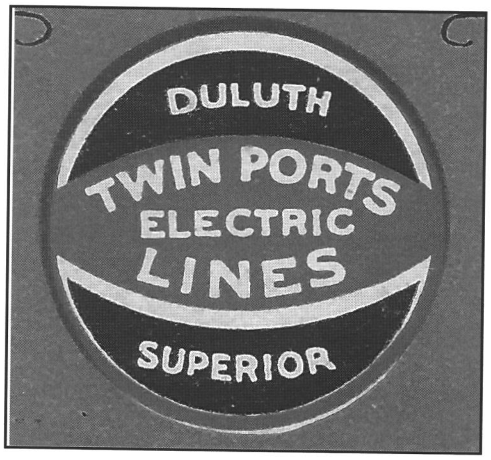
Highland Improvement Co.

Lakeside Railway Co.

Park Point Traction Co.

SUPERIOR RAPID TRANSIT RY. CO.

Douglas County Street Railway


DULUTH
TWIN PORTS
ELECTRIC
LINES
SUPERIOR

DULUTH STREET RAILWAY CO.

1882 - 1900

The Duluth Street Railway Co. was incorporated in October 25 1881 by William W. Billson (president), Frank W. Eaton (secretary), Alois Ebner, John M. Rich, Charles M. Wilson, Albert S. Chase, all of Duluth, and S. L. Bayless of St.Paul. The company secured a fifty-year charter from the Minnesota Legislature on November 17, 1881, provided that the grant would be wholly forfeited if one mile of road was not built, equipped, and in operation within one year.

Work on the first line began September 11, 1882, on a 3'6" gauge single track on the north side of Superior St. between 8th Ave. W. and 3rd Ave. E. with several passing tracks. Track materials consisted of light strap rails laid on pine stringers. Turntables were built at each end of the line. The first horsecar was purchased second-hand from the St.Paul City Railway Co. and arrived in Duluth November 22, 1882. This car was about 17 ft. long overall, with a five-window body and small open platforms at each end, the front platform being just large enough for the driver to stand on. A longitudinal seat on each side of the car was provided and a stove was located in the right front corner.

It is believed that this car, pulled by a mule, was operated for a short time before winter forced a halt to operations as well as construction. The car was left standing on the track near the west end of the line (between 5th Ave. W. and 6th Ave. W.) all winter.

Construction resumed in the spring, 1883, and two more horsecars were acquired. Full operation of horsecars over the entire line, using mules, was begun July 6, 1883. By this time the company's only stockholders were Albert S. Chase (general manager), O. P. Stearns, N. J. Miller, Alois Ebner and Luther Mendenhall.

Extensions of the original line were made as follows.
1. Single track on W. Superior St. and Michigan St. from 8th Ave. W. to 11th Ave. W. in 1884.
2. Single track on W. Michigan St. from 11th Ave. W. to Garfield Ave. in 1885.
3. Single track on E. Superior St. from 3rd Ave. E. to 13th Ave. E. in 1886.
4. Single track on W. Michigan St. from Garfield Ave. to 18th Ave. W., on 18th Ave. W. to W. Superior St., and on W. Superior St. from 18th Ave. W. to 23rd Ave. W., opened October 31, 1887.
5. Single track on E. Superior St. from 14th Ave. E. to 22nd Ave. E. in 1888. The ravine formed by Chester Creek had not been bridged so shuttle service was operated on the new extension until a connecting fill was completed. Through operation began September 3, 1889. Second track was added on W. Michigan St. from 11th Ave. W. to 13th Ave. W. in 1888.
6. Single track on W. Superior St. from 23rd Ave. W. to 28th Ave. W., completed in November 1889.

This was the extent of the horsecar system prior to electrification consisting of 4.22 miles of line and about 4.5 miles of track.

A horsecar barn and stables were built during 1885 on the southwest corner of W. Michigan St. and 11th Ave. W. Twelve additional horsecars and fifty mules were purchased April 14, 1886. The newspaper reported the cars were purchased new in the Twin Cities. Three new horsecars and 48 mules were purchased May 12, 1888, making it possible to maintain five-minute headway on the line. The 1890 U. S. Census listed ownership of 15 horsecars and 178 mules.

In August 1886 an amendment to the articles of incorporation was filed. The new board of directors consisted of five persons, each holding a 20% interest in the company: Samuel Hill (president) and Thomas Lowry, both of Minneapolis; Thomas P. Wilson of St.Paul; Albert S. Chase (secretary) and Albert L. Ordean, both of Duluth.

Duluth, Minn. SRJ FEB 1885

For some time negotiations have been pending with Minneapolis capitalists for the purchase of the Duluth street railway and all its franchises. Sam Hill, of Minneapolis, and Judge Thomas Wilson, of St. Paul, have closed the deal, paying $100,000 for the property. The new company will consist of Sam Hill and Thomas Lowry, of Minneapolis; Judge Wilson, of St. Paul; A. S. Chase and G. G. Hartley, of Duluth. Hill will be President of the company and A. S. Chase will continue as Manager. The President of the new company is the owner of a large amount of Minneapolis real estate, and is interested in different elevator companies and other Minneapolis enterprises. Thomas Lowry is the owner of the Minneapolis street railway lines and is President of the St. Paul street railway company. Judge Wilson is heavily interested in the St. Paul street railway system, and is the owner of the three best cable-car patents yet invented. One of these is to be utilized soon in a line of road up the hill, probably on Lake avenue. A. S. Chase, who will be the manager of the business, has held that position since the first establishment of the company. In 1886 it is proposed to lay double tracks on Superior street. Four miles of new track will also be put down. The present line will be extended both to the east and west ends as fast as the streets are graded by the village. A building for stable, cars, repair shops, and office is to be erected at a cost of not less than $15,000 early in the spring. The old cars will be taken off and thirteen new ones of latest design will be purchased. One hundred head of horses and mules will be required to handle the business before the end of 1886. It is estimated that the expenditure of the company for improvements contemplated will amount to $175,000.

Mpls Tribune 12-30-1885

[SPECIAL DISPATCH TO THE TRIBUNE.]

DULUTH, Dec. 29.—As important a sale as has been made here for a long time comes to light today. The Duluth Street Railway Company has sold its entire plant and franchise to capitalists of Minneapolis, St. Paul and Duluth for some $70,000, or about 200 cents on the dollar of the capitalization. Thomas Lowry and Samuel Hill, well known in Minneapolis, Thomas Wilson of St. Paul, the owner of three patents for cable roads, A. S. Chase of Duluth, the former controlling owner in the stock in the late company, and G. G. Hartley, late register of the Duluth land office, are the purchasers. The new company pays a large price for the plant and franchise, but the franchise alone is very valuable, being an exclusive privilege of the streets for 30 years, either for horse or cable, electric or steam, and covers every street in the city. The plant itself consists of some four miles of single track, six or seven cars and 35 horses and mules, together with some real estate. It has been a paying investment almost from the start two years ago.

The new company proposes among other things to double track Superior street, extend track both ways, put on 13 new cars, put up a $15,000 stable, and purchase about 100 head of mules. In three years, one of the company tells your correspondent, there will not be a line of railway in the city not run by the cable system. It is proposed to lay a track on Lake avenue from Canal some distance up the hill, and also up other avenues. The estimated cost of the improvements to be made by the new company in the next two years is between $175,000 and $200,000. The value of suburban property will be greatly enhanced when the extensions are completed, because both the hill and the ends of the town will be placed in close communication with the business portion of the city, and make them extremely desirable for residences.

⁂

ST RY GAZETTE JAN 1886

MINNESOTA.

Duluth.

A special from Duluth, Minn., says: For some time negotiations have been pending with Minneapolis capitalists for the purchase of the Duluth street railway and all its franchises. Yesterday Sam Hill, of Minneapolis, and Judge Thomas Wilson, of St. Paul, arrived in the city and closed the deal, paying $100,000 for the property. The new company will be organized immediately, consisting of Sam Hill and Thomas Lowry, of Minneapolis; Judge Wilson, of St. Paul; A. S. Chase and G. G. Hartley, of Duluth. Sam Hill will be president of the company, and A. S. Chase will continue as manager. Sam Hill, the president of the new company, is one of the ablest attorneys in the states, quite wealthy, and a shrewd investor. He is the owner of a large amount of Minneapolis real estate, and is interested in different elevator companies and other Minneapolis enterprises. Thomas Lowry is the owner of the Minneapolis street railway lines and is president of the St. Paul street railway company. His judgment and ability as a street railway man are unexcelled. He will do much to make the Duluth lines equal to any. Judge Wilson is heavily interested in the St. Paul street railway system, and is the owner of the best cable car patents yet invented. One of these is to be utilized soon in a line of road up the hill, probably on Lake avenue. A. S. Chase, who will be the manager of the business, has held that position since the first establishment of the old company. His ability has been tested, and has not been found lacking. With the increased facilities which the new company will provide he will make the service here second to none. In 1886 it is proposed to lay double tracks on Superior street, thus doing away with switches. Four miles of new track will also be put down. The present line will be extended both to the east and west ends as fast as the streets are graded by the village. The Council will be asked at once to open and establish grades on certain streets where extensions are to be made. This request will no doubt be granted promptly. A building for stable, cars, repair-shops, and office is to be erected at a cost of not less than $15,000 early in the spring. The old cars, now in use, will be taken off and thirteen new ones of the latest design will be purchased. This will make fifteen cars in all. One hundred head of horses and mules will be required to handle the business before the end of 1886. It is estimated that the expenditure of the company for improvements contemplated will amount to $175,000.

Samuel Hill (1857-1931) practised law in Minneapolis and was active in the Republican Party. A number of successful lawsuits against the St.Paul Minneapolis & Manitoba Railway attracted the attention of James J. HIll who hired him to represent the railway. In 1888 Samuel Hill married James J. Hill's oldest daughter, Mary. Samuel Hill was president of the Minneapolis Loan & Trust Company which was a "new loan company" also backed by James J. Hill according to a Minneapolis Tribune newspaper article dated February 14, 1889.

DULUTH STREET RAILWAY
Compilations from Minneapolis Tribune Articles

12-30-1885: Print-out.

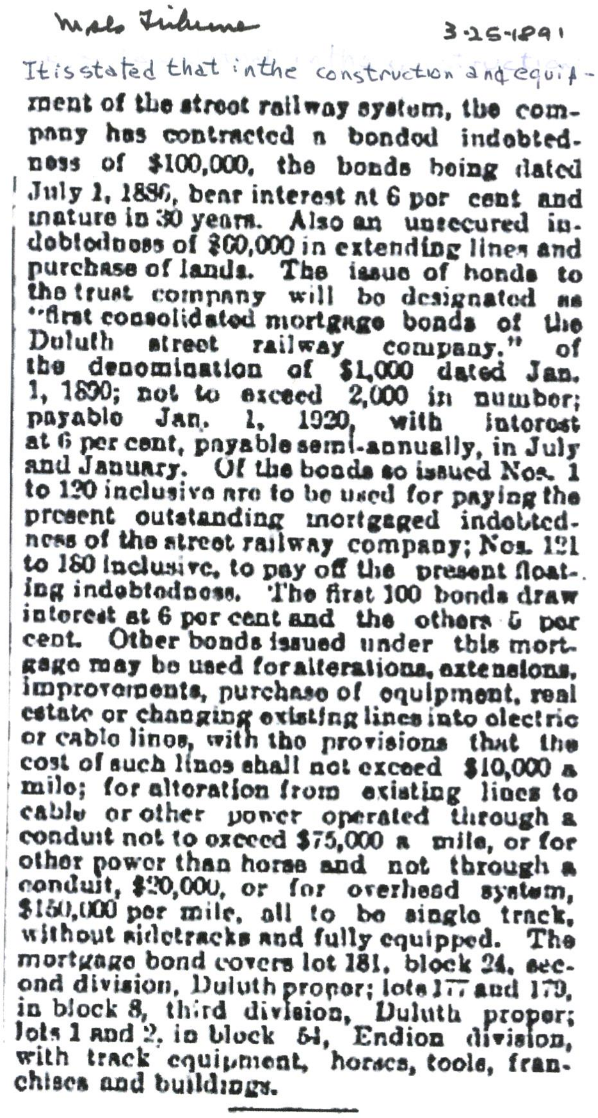
3-7-1890: A telegram was received this morning [Mar. 6th] by A. S. Chase, superintendent of the street railway company, from Thomas Lowry, stating that an electrified system for Duluth's street railway would be purchased, conditioned upon the action of the city's council granting the necessary provision to operate electric cars. The matter is now in the hands of the railroad committee of the city council. If the ordinance is passed satisfactory to the company, operations will be commenced at once. The improvement will cost $125,000 not including extensions.

4-4-1890: Officers and directors are Samuel Hill president, Thomas P. Wilson vice president, A. S. Chase secretary and treasurer, G. G. Hartley and Thomas Lowry.

8-29-1890; 3-25-1891: bond issue; see print out.

8-10-1891 and 8-11-1891: Receivership; see print outs.

8-12-1891: The affairs of the Duluth St. Ry. were settled today. Samuel Hill and J. J. Hill were here yesterday. They returned this afternoon. According to the terms of settlement Samuel Hill and A. S. Chase are no more connected with the company. "Mr. Hill was paid money for his 1/5 interest this morning" said Judge Stearns," and his stock was conveyed to Mr. Hinchman of Philadelphia, who has long been a friend of Duluth. Mendenhall & Hoopes now own 1/5, Thomas Lowry 1/5, Mr. Hinchman 1/5, Mr. Hartley 1/5, Mr. Mendenhall 1/20, while Mssrs. Willard, MacFarlane and myself own 3/20 together. The whole thing, with the exception of Lowry's 1/5, is in the hands of Duluthians. There has been no desire to have Mr. Lowry sell out, for his services have always been greatly appreciated. The receivership will probably be dissolved, but there is really no need of a great hurry about it and I suppose it will be 30 days before that will happen."



Mpls Tribune 3-25-1891

It is stated that in the construction and equipment of the street railway system, the company has contracted a bonded indebtedness of $100,000, the bonds being dated July 1, 1886, bear interest at 6 per cent and mature in 30 years. Also an unsecured indebtedness of $60,000 in extending lines and purchase of lands. The issue of bonds to the trust company will be designated as "first consolidated mortgage bonds of the Duluth street railway company," of the denomination of $1,000 dated Jan. 1, 1890; not to exceed 2,000 in number; payable Jan. 1, 1920, with interest at 6 per cent, payable semi-annually, in July and January. Of the bonds so issued Nos. 1 to 120 inclusive are to be used for paying the present outstanding mortgaged indebtedness of the street railway company; Nos. 121 to 180 inclusive, to pay off the present floating indebtedness. The first 100 bonds draw interest at 6 per cent and the others 5 per cent. Other bonds issued under this mortgage may be used for alterations, extensions, improvements, purchase of equipment, real estate or changing existing lines into electric or cable lines, with the provisions that the cost of such lines shall not exceed $10,000 a mile; for alteration from existing lines to cable or other power operated through a conduit not to exceed $75,000 a mile, or for other power than horse and not through a conduit, $20,000, or for overhead system, $150,000 per mile, all to be single track, without sidetracks and fully equipped. The mortgage bond covers lot 181, block 24, second division, Duluth proper; lots 177 and 179, in block 8, third division, Duluth proper; lots 1 and 2, in block 54, Endion division, with track equipment, horses, tools, franchises and buildings.

Mpls Tribune 8-10-1891

DULUTH, Minn., Aug. 9.—[Special.]—The Duluth Street Railway Company is in the hands of a receiver. The district court last Friday appointed Townsend W. Hoopes receiver. The action was done quietly and kept from the press till today. There are two factions of the stockholders. It was the anti-Lowry faction that applied for a receiver. The move was a complete surprise to the Loway side, and was taken in their absence from the city in an endeavor to straighten out matters. President Luther Mendenhall, recently elected, and regarded as the anti-Lowry leader, says:

"Application was made under a resolution of the board of directors and the stockholders, duly passed after a conference with some of the principal creditors. Four-fifths of the stock and a large amount of the indebtedness was represented at the meeting at which the resolution passed. The application and appointment were made for the purpose of putting the property under the protection of the court for the benefit of all its creditors and to prevent any one creditor getting any undue advantage over another until the bonds of the company, upon which it is shown that interest is fairly earned, in addition to operating expenses and taxes, from being sacrificed by parties who hold them as collateral, some of whom, it is said, have desired to wreck the company for their own profit, without regard to the rights and equities of others. The company is now receiving about $400 per day, which is ample to pay operating expenses and interest on all its debts. The company can pay all its debts in full if given a reasonable time and an opportunity to market its first mortgage gold bonds at a fair price."

Receiver Hoopes has filed his bond for $100,000, the amount fixed by the court, and entered into possession. The company owns the exclusive franchise to build and operate street railways in Duluth and suburbs. It has recently extended its lines, and put in full electric equipment. It produces its own power under the Thomson-Houston system. The cost of the improvements last year exceeded $300,000. From inside sources it was learned tonight that the cause of the trouble is a row between Minneapolis and Duluth stockholders. Mr. Lowry and Sam Hill now have only small interests, four-fifths of the stock being owned in Duluth. Sam Hill and G. G. Hartley were fast friends until recently, but lately it is said they have been pulling against each other in the management of the company. It is said that while A. S. Chase was in Minneapolis last week to negotiate for the purchase of the stock there, the Duluth stockholders became suspicious and threw the affairs of the company into courts. A heavy stockholder said tonight that the result of the fight would be that some outsider would step in, and none of the present stockholders would be in control.

Samuel Hill, of Minneapolis, president of the Duluth Street Railway Company, was very little disturbed by the report that his company had been placed in the hands of a receiver.

8-11-1891

"I have seen the account of the matter in this morning's TRIBUNE," he said, "and I have no information other than that. I think there is more sensationalism than there is anything else in the item. You will observe that the creditors of the company appeared satisfied. The special shows that the application was made on behalf of some of the stockholders.

"Mr. Chase, the secretary and treasurer of the company, was down here on Friday and Saturday. Mr. Lowry has gone to New York. I am satisfied the move was a total surprise both to Mr. Lowry and to Mr. Chase as well as to myself. The road is very prosperous and a valuable piece of property. I think the matter will undoubtedly be settled without any expensive litigation, as J. A. Willard, A. R. McFarland, president of the American Exchange Bank of Duluth; Luther Mendenhall, president of the First National Bank of Duluth; Judge O. B. Stearns and Thomas Lowry, not to mention the other stockholders, are able and willing to pay any claims against the company. I think the action in calling for a receiver is the result of haste and misapprehension.

"I do not believe that it is an anti-Lowry move because I regard Mr. Lowry's assistance and co-operation is very desirable to everyone who is running an electric road in this part of the country."

"I am completely in the dark in this matter but my faith is great. I never quarrel with a man for doing what he had a right to do and if the majority of the stockholders thought best to ask for a receiver they had a right to do so even if I am president.

"The road is all right, the creditors got their interest last July—but there is nothing to prevent, under the law, the majority of ~~"The road is all right, the creditors got their interest last July—but there is nothing to prevent, under the law, the majority of~~ stockholders in any similar institution from applying at any time for a receiver."

Electrification fever was spreading in Duluth as a result of the experimental electric lines in Minneapolis and St.Paul. Financing the conversion was the major obstacle. Albert Chase received a telegram February 19,1890, from Thomas Lowry in the east stating that he had been successful in raising $500,000 for establishing a complete electric railway in Duluth as well as extending lines to West Duluth and other localities, plus building the incline railway on 7th Ave. W. and a line on top of the hill from the incline railway. Meanwhile competitors were pressuring the city council for permission to operate an electric railway. Franchise terms for the electrification were not resolved until the end of April 1890. Immediately thereafter began the task of purchasing and installing steam-powered generating equipment, heavier rail to 4'8½" gauge, overhead poles and trolley wire, paving Superior St., and training personnel to operate the new electric motor cars. The Northwest Thomson-Houston Company received the contract for electrification of the horsecar system. The existing horsecar line was completely rebuilt and opened as an electric line November 8, 1890. A newly-built second line on E. 4th St. was opened December 21, 1890.

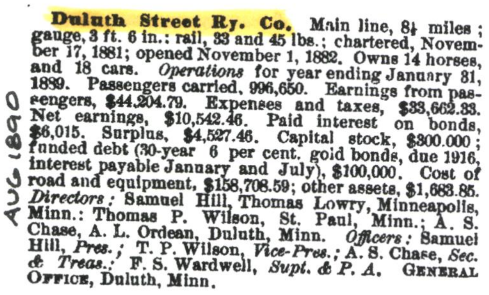
In June 1891 it was announced that A. R. Macfarlane, Luther Mendenhall, O.P. Stearns, John A. Willard and several others had purchased the 40% interest of A. S. Chase and T. P. Wilson. This plus the 20% interest owned by Guilford G. Hartley (apparently he had purchased A. L. Ordean's interest) gave controlling interest to Duluth industrialists. Officers elected June 8, 1891, included G.G. Hartley (president), Thomas Lowry, Samuel Hill, and Luther Mendenhall. Apparently financial difficulties were encountered for it was reported that the stockholders authorized the directors to apply to District Court for a receiver to operate the property for the benefit of the stockholders and creditors on August 5,1891, but this was terminated effective August 28, 1891. Offices were established in the First National Bank Building, 21 W. Superior St., in October 1891.

In November 1893 Herbert Warren was appointed general manager. He had been chief clerk in the office of St.Paul City Ry. Co. general manager Willard J. Hield. Mr. Warren was to serve Duluth St. Ry. in an executive capacity until his retirement in 1938.

DSR continued to construct additional lines throughout 1891 to 1897. DSR also undertook operation of the three real-estate promotion company electric railways, acquiring one of them in the process. All of this is explained in more detail in the sections on each railway. General offices of DSR were moved to the company building at Michigan St. and 11th Ave. W. effective November 29, 1897. Officers at this time were Luther Mendenhall (president), G.G. Hartley (vice president), T. W. Hoopes (secretary and treasurer), Herbert Warren (general manager), Walter J. Smith (master mechanic), Matt Noble (chief engineer), and Thomas Armstrong (roadmaster).

The Duluth-Superior Traction Co. of New Jersey had been incorporated in June 1894 and subsequently acquired 99.95% of Duluth St. Ry. Co. capital stock in exchange for Duluth-Superior Traction Co. stock. DSR continued as the operating company with D-STC as a holding company.

The cost of electrification and expansion of the system coupled with the effects of the 1893 financial depression resulted in Duluth St. Ry. defaulting on the interest payments on its first and second mortgage bonds in 1898. On July 7, 1898, DSR entered receivership with Luther Mendenhall appointed receiver.



Duluth Street Ry. Co. Main line, 8¼ miles; gauge, 3 ft. 6 in.: rail, 33 and 45 lbs.; chartered, November 17, 1881; opened November 1, 1882. Owns 14 horses, and 18 cars. *Operations* for year ending January 31, 1889. Passengers carried, 996,650. Earnings from passengers, $44,204.79. Expenses and taxes, $33,662.33. Net earnings, $10,542.46. Paid interest on bonds, $6,015. Surplus, $4,527.46. Capital stock, $300.000; funded debt (30-year 6 per cent. gold bonds, due 1916, interest payable January and July), $100,000. Cost of road and equipment, $158,708.59; other assets, $1,683.85. *Directors:* Samuel Hill, Thomas Lowry, Minneapolis, Minn.: Thomas P. Wilson, St. Paul, Minn.; A. S. Chase, A. L. Ordean, Duluth, Minn. *Officers:* Samuel Hill, *Pres.;* T. P. Wilson, *Vice-Pres.;* A. S. Chase, *Sec. & Treas.;* F. S. Wardwell, *Supt. & P. A.* GENERAL OFFICE, Duluth, Minn.

AUG 1890

SUPERIOR RAPID TRANSIT RAILWAY CO.
DOUGLAS COUNTY STREET RAILWAY

1884-1900

DOUGLAS COUNTY STREET RAILWAY

The Douglas County Street Railway was incorporated in April 24 1884 with the following stockholders: J. H. Hammond, W. P. Clough, A. G. Foster, E. W. Winter, all of St.Paul, Minnesota; John C. Spooner, Hudson, Wisconsin; Hiram Hayes, James Bardon, George L. Brooks, William J. Conan and Peter E. Bradshaw, all of Superior. On March 29, 1884, the town board of Superior passed an ordinance granting the company authority to construct and operate a street railway anywhere in the Town of Superior. No construction was undertaken and the town board extended the time of completion September 1, 1887.

On April 1, 1887, Henry D. Minot of Boston secured control of the company and began construction of the horsecar line that summer. A horsecar barn was constructed at 5th St. and Newton Ave. (25th Ave. E.). The line began at 5th St. and Newton Ave. and ran west on 5th St. to Thompson Ave. (22nd Ave. E.), north on Thompson Ave. to 2nd St., and west on 2nd St. to the intersection of Bay and Winter Streets. The Superior Sunday Morning Call of August 14, 1887: "Three handsome new streetcars for the Douglas County Street Railway arrived here Wednesday. They were manufactured by Robinson & Hitt of Waterloo, Iowa, and are finished up in first-class style. They will be put into service Monday." On August 22, 1887, the town board passed an ordinance stating that the line had been located, constructed and equipped; if it could maintain daily service from 7:00 a.m. to 6:00 p.m. from the courthouse terminal (5th St. and Newton Ave.) to the outer end before September 1, 1887, such service continued until April 1, 1888, would be considered full operation of the line. Operation did begin on an irregular basis; no attempt was made to furnish regular service but four daily trips were made for several months to bear witness that the terms of the ordinance had been complied with. Three cars had been purchased but only two cars were used for service. The company was authorized by the town board to operate barges or sleighs in lieu of horsecars from the courthouse to Winter St. and on Winter St. to the Tower Ave. Hotel in West Superior from December 6, 1887, until April 15, 1888. No further mention is made of horsecar operation on this line.

In the spring of 1889 Superior was incorporated as a city and on July 9, 1889, the city council passed an ordinance which renewed the franchise of the Douglas County Street Railway but changed the location of the original route and required the construction of additional lines. Officers and directors of the company at this time were Henry D. Minot (president), John A. Bardon (secretary), C. W. Bunn, Frank E. Ward and Peter E. Bradshaw. S. T. Norvell was Superintendent. The routes required by the ordinance were as follows.
(A) To be completed within six months from July 9, 1889:
    (1) from 5th St. and Newton Ave., on 5th St., L Ave., 7th St., and Belknap St. to Tower Ave. and Belknap St.;
    (2) on Tower Ave. from 3rd St. to 21st St.
(B) To be completed after 1889 as soon as streets were in suitable condition:
    (3) loop line from Belknap St. and Catlin Ave. on Catlin Ave. to Broadway, and on Broadway (or Winter St.) to Tower Ave.
(C) To be completed after May 15, 1890, as soon as streets were in suitable condition:
    (4) on 3rd St. from Tower Ave. to Lamborn Ave.

The first horsecars begn operation December 23rd or 24th, 1889, on the first two lines mentioned in the ordinance. Office and stables were located in the original building at 5th St. and Newton Ave. (25th Ave. E.) (where the Northern Pacific Railway depot was later constructed). As of February 1, 1890, four horsecars and eight horses were owned.

Electrification of the initial two lines was in the early planning stages while the horsecar lines were still under construction. Capitalization of the company was increased in March 1890 for financing the planned electrification. The Northwest Thomson-Houston Company received the contract for electrification which was promptly undertaken. The first three miles of electric line were opened for traffic on July 1, 1890. This was increased to about six miles by the end of 1890.

Directories of the 1891 time period list the company offices as located in the First National Bank Building, or the Trade and Commerce Building. Officers were S. T. Norvell (president and general manager), Frank G. Peters (secretary) and W. Slack (treasurer).

SUPERIOR RAPID TRANSIT RAILWAY CO.

The Superior Rapid Transit Railway Co. was incorporated in August 1892 by Samuel Barnes (president), Frederick W. Hanson (secretary), and William Neville. They offered to purchase the Douglas County Street Railway for 9,987 shares of fully paid capital stock of the Superior Rapid Transit Railway Co. plus $450,000 in first mortgage bonds secured by a mortgage with Central Trust Company of New York as trustee. The offer was accepted August 12, 1892, by DCSR and shortly thereafter SRTR succeeded to the rights and properties of the DCSR. Later in 1892 officers and directors of SRTR were Stephen T. Norvell (president and general manager), Frederick W. Hanson (secretary and treasurer), James Bardon, all of Superior, and Charles Fairchild of Boston.

DCSR had undertaken additional track construction in 1892 which was completed by SRTR. SRTR also constructed additional track in 1892 and 1893. To finance this additional construction $200,000 in second mortgage bonds were issued July 3, 1894, again with the Central Trust Company of New York as trustee.

However SRTR defaulted in payment of interest on the second mortgage bonds and was placed in receivership January 28, 1896. S. T. Norvell and Frank W. Oakley were appointed receivers. The mortgage foreclosure sale was held June 16, 1900. The property was purchased for $350,000 by Marcus D. Munn (Twin City Rapid Transit Company's legal counsel) acting as agent for the second mortgage bondholders. Directors of the SRTR subsequently elected were S. T. Norvell, Thomas Lowry, G. G. Hartley and Luther Mendenhall.

DULUTH-SUPERIOR TRACTION CO. (NEW JERSEY)
1894-1897

The need for a bridge across St.Louis Bay connecting Duluth and Superior caused the incorporation of the Duluth-Superior Bridge Company prior to 1895, but the names of the officers and directors are not known.

Interest in combining the street railway systems of both Duluth and Superior under one management led to the organization of the Duluth-Superior Traction Co. in June 1894 by Luther Mendenhall (president), G. G. Hartley and Thomas Lowry. The Duluth-Superior Traction Company was incorporated in July 1894 at Elizabeth, New Jersey. The incorporators were John H. Davis, New York City; Frank Bergen, Elizabeth, New Jersey; and Edward V. Douglas, Philadelphia. Capital stock authorized was $2 million. This corporation proceeded to acquire 2,991 shares of Duluth Street Railway $100 par value stock for $1,999,000 (the total amount of DSR stock with the exception of the director's qualifying shares in the amount of $1,000) in exchange for capital stock of the Duluth-Superior Traction Co.

Long and patient efforts in the Minnesota and Wisconsin legislatures finally produced authorization, effective January 1, 1896, to construct the Duluth-Superior Bridge. Documents in DSR files indicate the D-STC became involved in the bridge construction. Lack of complete information creates confusion as to what actually occurred. What is known is summarized following.

> Duluth-Superior Traction Co. (Traction Co.) made an agreement with the Duluth-Superior Bridge Co. (Bridge Co.) June 23, 1896, to the effect that the Traction Co. would construct the bridge in exchange for $200,000 in capital stock, $650,000 in first mortgage bonds and $300,000 in second mortgage bonds of the Bridge Co.. On July 31,1896, the Traction Co. made another agreement with Bridge Co. to lease the completed bridge from the Bridge Co. for a period of thirty years from May 1, 1897, the date on which the bridge was to be completed. Also on July 31, 1896, the Traction Co. made a joint lease agreement with Duluth St. Ry. and Superior Rapid Transit Ry. for use of the bridge by streetcars.
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> On August 1, 1896, the Bridge Co. conveyed all its property and franchises to a trustee to secure payment of $650,000 in bonds that had been issued by the Bridge Co.. On August 12, 1896 the Traction Co. sold to Stephen T. Norvell, receiver of the Superior Rapid Transit Ry. a one-half interest in the two lease agreements of July 31, 1896.

By July 1, 1897, when the bridge was substantially completed, the Traction Co. owned only $100,000 in capital stock and $108,000 of first mortgage bonds of the Bridge Co. which seems to indicate that most of the bridge construction was financed through the Bridge Co. The financial situation apparently affected the Traction Co. as well for a re-organization had occurred in May 1897.

DULUTH-SUPERIOR TRACTION CO. (CONNECTICUT)
1897-1945

The Duluth-Superior Traction Co. was incorporated in Connecticut in January or May, 1897, by A. Heaton Robertson, Henry Sanford, J. M. Hall, Morton F. Plant, R. G. Erwin, W. P. Douglas, and Chester A. Congdon with its principal office in New Haven, Connecticut. The Traction Co.-Conn. voted to issue $2 million in capital stock in exchange for an equal amount of capital stock of the Traction Co.-N.J.. All of the assets, property, contracts and leases of the New Jersey corporation were assigned to the Connecticut corporation effective July 1, 1897.

The Bridge Co. subsequently defaulted in payment of principal and interest on all of the mortagge bonds secured by the trust deed and was forced into receivership by January 1899. G. G. Hartley was appointed receiver April 4, 1899. On November 8, 1899, the trustees commenced a mortgage foreclosure suit against the Bridge Co. In order to discontinue the foreclosure suit, discharge the receiver, and restore control of the bridge to the Bridge Co., a series of agreements was entered into between the Bridge Co., Traction Co.-Conn., and Duluth St. Ry. whereby all of the original contracts, leases and assignments were cancelled or modified so as to result in Duluth St. Ry. leasing the bridge from the Bridge Co. The agreements were dated November 1,1900, but not executed until January 1901. The Duluth-Superior Bridge Co. subsequently became an affiliate of the Great Northern Railway.

Meanwhile the Duluth-Superior Traction Co. (Connecticut) (hereafter referred to as DSTC-C), engaged Ford, Bacon & Davis, consulting engineers, to study and evaluate the Duluth and Superior properties. Their report, dated March 20, 1900, concluded in general that:
(1) Duluth management was capable and progressive. If any criticism was necessary it was that too much expense had been put on maintenance of car equipment and too little on maintenance of track. All track was in bad condition as to joints, bonds, surface and alignment.
(2) Superior management was at the mercy of rundown construction and equipment.

Based on the Ford, Bacon & Davis report the Superior Rapid Transit Ry. was acquired at the mortgage foreclosure sale June 16,1900, as previously related. Duluth St. Ry. was released from receivership on August 12, 1900, still owned by DSTC-C. On August 13, 1900, the Superior Rapid Transit Ry. was consolidated with the Duluth St. Ry., DSR being the surviving corporation. The two remaining real-estate promotion electric railways were subsequently acquired by DSR; the Lakeside Railway on September 1, 1900, and the Woodland Company July 1, 1901.

It was reported that by 1909 the DSTC-C carried on its books a charge totaling $1.5 million against DSR, probably representing cash advances to make the foregoing acquisitions and for other purposes. About 1909 this account was eliminated by the exchange of capital stock. After the exchange it was reported that the capital stock of DSTC-C outstanding was $5 million, some of which was owned by stockholders of the former D-STC (N.J.) and some by those who were stockholders of DSR before the 1900 consolidation.

Officers and directors of Duluth-Superior Traction Co., Connecticut, for many years were: A. M. Robertson (president) (also a vice-president of Twin City Rapid Transit Co.); Herbert Warren (vice president and general manager); S. L. Reichert (secretary-treasurer); A. E. Ames, Toronto; Horace Lowry, Minneapolis; Luther Mendenhall, Duluth; W. H. Goadby, New York; F. H. Deacon, Toronto; and Edmund Zacher, New Haven.

As will be subsequently related, the Duluth St. Ry. entered receivership May 2, 1930. It was re-organized as the Duluth-Superior Transit Co. in 1933, also subsequently related. As a result of the re-organization the DSTC-C, holder of the 18,000 shares of DSR $100 par value common stock, it was to receive 1,500 shares of Duluth-Superior Transit Co. stock on the condition of the surrender of the 18,000 shares of DSR common stock and all of its other personal and real property. Thus the DSTC-C became the owner of 1,500 shares out of about 39,000 shares of the no-par value capital stock of the Duluth-Superior Transit Co.

In 1945 the Duluth-Superior Traction Co. was liquidated. The 1,500 shares of Duluth-Superior Transit Co. common stock was distributed on the basis of one share of Transit Co. stock for each 10 shares of Traction Co. preferred stock owned.

A RECEIVER IS NAMED
Minneapolis Tribune (1867-1908); Jul 8, 1898;
ProQuest Historical Newspapers Minneapolis Tribune (1867-1922)
pg. 6

A RECEIVER IS NAMED

DULUTH STREET RAILWAY HAS A CHANGE OF MANAGEMENT.

Important Judicial Action Taken Yesterday at the Instance of Thomas Lowry of Minneapolis.

DULUTH, July 8.—President L. Mendenhall, on application of Thomas Lowry, of Minneapolis, one of the stockholders and creditors, was yesterday appointed receiver of the Duluth Street Railway company.

It is explained that this is the beginning of reorganization made necessary by an excessive capitalization and shrinkage in western business and values since the panic of 1893. It is not caused by any pressing exigency or dissension. The present management will continue. The company has netted almost as much this year as any previous year, but its gross earnings were considerably less.

Mr. Lowry last evening corroborated the statements in the above dispatch, and admitted that it was principally at his instance that the steps were taken, though with the acquiescence of large Eastern creditors. Mr. Lowry further stated that the company had for some time been unable to meet its obligations, but that the action was taken in all friendliness, as shown by the appointment of Mr. Mendenhall, one of the stockholders.

As to the outcome of the receivership, Mr. Lowry stated that everything depended upon the future progress of Duluth. Should not this be good, the prospects are that the creditors will not realize to any considerable amount.

OWNED BY LOWRY
Minneapolis Tribune (1867-1908); Feb 15, 1900;
ProQuest Historical Newspapers Minneapolis Tribune (1867-1922)
pg. 5

OWNED BY LOWRY

DULUTH SUBURBAN STREET CAR LINE CHANGES HANDS.

President of the Twin City Street Railway Company Will Operate It Hereafter.

By Wire From Duluth, Minn., Feb. 15.

Thomas Lowry, of Minneapolis, has purchased the Lakeside Street Railway Co., of this city, and is now in control of the company.

The line was built by the Lakeside Land Co. interests and reaches the suburb owned by that company. It has been operated by the Duluth Street Railway Co., of which Mr. Lowry is a heavy stockholder. There has always been trouble between the two companies over the operation of the line.

It has been paying fairly well lately. In the summer time the travel is heavy, but the Lakeside Co. only owned six cars, and these were insufficient to accommodate the travel.

THOMAS LOWARY'S FINE HAND
Minneapolis Tribune (1867-1908); May 5, 1900;
ProQuest Historical Newspapers Minneapolis Tribune (1867-192
pg. 4

THOMAS LOWRY'S FINE HAND

Efforts Being Made to Consolidate Duluth Street Railways.

By Wire From Duluth, Minn., May 5.

For some time the men interested in the Duluth street railway, who are principally Thomas Lowry, Minneapolis, and G. G. Hartley and Luther Mendenhall, Duluth, have been working toward the consolidation of all the street railway systems at the head of the lakes.

The receiverships of the street railways at Duluth and Superior were evidently steps in this direction.

The consolidation is now in a fair way to be consummated and there is little doubt that it will go through.

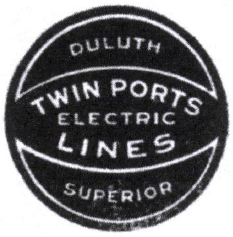
Some time ago Thomas Lowry bought the Lakeside street railway, one of the suburban lines in this city, which is to be in the consolidated system.

The deal will go through about July 1 if all goes well.

The system will then be a very large one, comprising all the lines at the head of the lakes and that it will be a valuable one no one will gainsay.

TWIN PORTS LINES

The Duluth-Superior Traction Company, of Duluth, Minn., has adopted a new emblem or trade mark for its system and has utilized a suggestion recently originated as an appropriate designation when referring to the cities and interests of Duluth and Superior. The name adopted is Twin Ports and the new trade mark, as shown in the accompanying illustration, appears in colors on a new folder and time card issued by the company. Several thousand buttons have also been ordered showing the emblem and these will be worn by the company's employes and they will also be distributed to patrons who call for them.



New Trade Mark Design for Twin Ports Lines

DULUTH STREET RAILWAY
1900-1933

The officers and directors of DSR during the early years of consolidation, when the ambition was to make Duluth and Superior a metropolis equal to the Twin Cities, were: Calvin G. Goodrich (president), Luther Mendenhall (treasurer), S. L. Reichert (secretary), Herbert Warren (general manager), Thomas Lowry, G. G. Hartley, Marcus D. Munn, Joseph Sellwood, and T. W. Hoopes.

After the deaths of Thomas Lowry and Calvin Goodrich, the officers and directors were nearly identical to those of the Duluth-Superior Traction Co. (Connecticut) and with minor changes remained that way until the 1933 re-organization. A. M. Robertson (president), Herbert Warren (vice president and general manager), S. L. Reichert (secretary-treasurer), A. E. Ames, Horace Lowry, Luther Mendenhall and F. H. Deacon. Other operating officers of DSR in the peak years of operation were W. P. Dwyer (auditor), Harry H. Brown (superintendent-Duluth division), Alfred Williams (superintendent-Superior division), Otis Birdsall (purchasing agent), John Carson (chief engineer and electrical engineer), R. J. Crawford (master mechanic), and Thomas Armstrong (roadmaster).

The last addition to the system took place when the Park Point Traction Co. was acquired on September 1, 1917.

The peak year of rail operation was 1919 when 38,474,440 passengers were carried; 5,538,842 car miles operated; and 670 persons employed. The population of Duluth was approximately 95,000 and Superior 40,000 for a total of 135,000 persons.

Rising operating costs, automobile competition resulting in falling revenues, all plagued DSR in the same manner as other companies in the industry. Due to the geographical layout of each city, the population density per square mile was very low and many of the lines were necessarily very long. Duluth had 67.34 square miles with approximately 1,500 persons per square mile, while Superior had 36.60 square miles and approximately 1,000 persons per square mile. The average for cities of similar size was 3,500+ persons per square mile. Thus the service furnished produced insufficient revenue to justify the cost. The seating capacity of the streetcars was large making it difficult to maintain satisfactory headways without providing too many seats. The Incline Railway and Highland Ave. line operating costs greatly exceeded the revenue.

The conversion to one-man operation of the streetcars began in Superior during 1924 and in Duluth during 1928. In March, 1925, 7% cumulative preferred stock was sold to employees and the public to procure additional capital for property improvements. The first operation of motor buses began in December 1924. Peak track mileage was reached in 1929. Intercompany correspondence of the 1925 to 1927 period indicated that patronage in Superior had fallen off to an alarming degree.

Luther Mendenhall died September 26, 1929. He had been a director of DSR from 1883 to 1927, president of D-STC (Conn.) from 1898-1900 and a director from 1897 until his death. A. M. Robertson, president of DSR and D-STC (Conn.) died in July 1933.

In May 1929 it was reported that mortgaged debt of over $3 million was due May 1, 1930, and present earnings were insufficient to insure necessary refinancing at satisfactory terms, if at all. The financial depression of 1929 added the finishing touch and the company entered receivership May 2, 1930; Oscar Mitchell of Duluth was appointed receiver. Under the receiver the first abandonments of streetcar lines occurred, the first in 1930 and several more during 1931. During 1933 a corporate re-organization was effected.

Personal Items

Personnel Changes Announced in Duluth

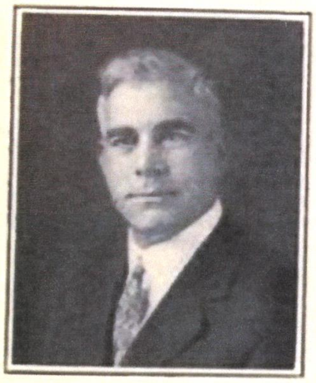
With the recent resignation of H. H. Brown as superintendent of the Duluth Street Railway, Duluth, Minn., announcement was made by Herbert Warren, vice-president and general manager, of several changes in the company's organization. W. S. Byers will be Mr. Brown's successor and B. G. Noah will fill Mr. Byers' present position as assistant to Mr. Warren. The changes are effective on May 1.

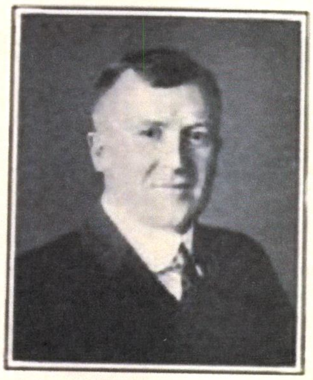
Mr. Byers, who will take charge of the superintendency of the Duluth division, has been an employee of the railway for more than 26 years. He has been assistant to Mr. Warren for a number of years and is well known throughout the city.

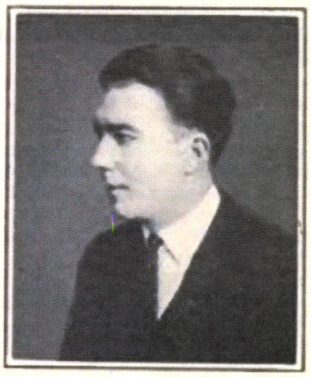
B. G. Noah, who is now a resident of Chicago, will go to Duluth on May 2 to assume his duties. He was in the employ of the Chicago City Railway and the Chicago Surface Lines from January, 1914, to February, 1917, as engineer of tests. The duties of this position consisted of making electrical and mechanical tests of substation transforming and converting equipment. In February, 1917, and up to July, 1917, he was engaged by the sanitary district of Chicago as testing engineer in charge of electrolysis mitigation. During the next two years he was in the aviation corps of the army and saw sixteen months service in France.

From July, 1919, up to the present time he has been with the Chicago Surface Lines as engineer of tests in charge of substation design and installation, his duties including the preparation of power statistics and distribution engineering. While in the employ of the Chicago Surface Lines he has also been consulting engineer for the Hammond, Whiting & East Chicago Railway. Mr. Noah completed his high school education in Kansas City, Mo., and in 1914 completed a four years course in electrical engineering at the Armour Institute of Technology.

H. H. Brown, who leaves the traction field to become associated with a large Eastern manufacturing concern, went to Duluth in 1911 as a clerk in the general manager's office. He has been superintendent since 1916 and has taken a leading part in the safety campaigns in the city. He is chairman of the statistical committee of the Chamber of Commerce safety bureau and has been on the executive committee ever since the organization of the safety division. Most of his time will be spent in Chicago.


H. H. Brown


W. S. Byers


B. G. Noah

ERJ AUG 1929

B. G. Noah General Superintendent at Duluth

B. G. Noah has been appointed general superintendent of the Duluth Street Railway, part of the Duluth-Superior Traction, in charge of all departments of operation in Duluth, Minn., and Superior, Wis.

G. B. Noah

For the past two years Mr. Noah has held the position of assistant to the vice-president, going to Duluth from Chicago where, for ten years, he was connected with the Chicago Surface Lines as electrical engineer in charge of power station design and electrical testing. Mr. Noah received his technical training in electrical engineering in Chicago.

The principal departments of operation which will be under Mr. Noah's direction are: Engineering and roadway department under John Carson, chief engineer and T. A. Armstrong, roadmaster· mechanical department under R. J. Crawford, master mechanic; the operating departments in Duluth and Superior under William S. Byers, superintendent, Duluth division, and Alfred Williams, superintendent, Superior division, and schedules and publicity under R. B. Thompson, superintendent of schedules.

Herbert Warren, vice-president and general manager of the company, explains in a bulletin announcing the appointment, that "the increasing burdens of management other than operation, make the change necessary."

DULUTH-SUPERIOR TRANSIT CO.
1933-1939

The Duluth-Superior Transit Co. was incorporated in January 1933; a re-organization of DSR resulted in transfer by DSR to the Transit Co. of all its property effective September 1, 1933. Officers of the Transit Co. were: Herbert Warren (chairman of the board), Burton G. Noah (president and general manager), Oscar Mitchell (vice president), and S. L. Reichert (secretary-treasurer).

The holders of securities and stock of DSR received in exchange for such holdings the following in bonds and no-par value capital stock of the Transit Co..

1. To the holders of the $2,388,000 of first mortgage bonds: $50 in cash, a new bond for $500 and 11¼ shares of stock for each $1,000 face value of their holdings;
2. to the holders of the $507,000 general mortgage bonds: $50 in cash and 15 shares of stock for each $1,000 face value of their holdings;
3. to the holders of 3,437 shares of $100 par value 7% preferred stock: one share of stock for each share held; and
4. to Duluth-Superior Traction Co. (Conn.), holder of the 18,000 shares of $100 par value common stock, 1500 shares of stock.

B. G. Noah, president, left in 1936 to become the assistant to the president of Twin City Rapid Transit Co.. Officers of the Transit Co. then became: Herbert Warren (president), R. B. Thompson (assistant to the president), and S. L. Reichert (secretary-treasurer). Herbert Warren retired in 1938 and the officers became: Homer Collins (president), R. B. Thompson (vice president and general manager), and S. L. Reichert (secretary-treasurer).

Abandonments of streetcar lines began in earnest during 1934. The last line in Superior ceased operating in 1935 and the final operation in Duluth ceased in 1939. The Transit Co. continued in business as the bus system operator in Duluth and Superior.

ERJ
4-18-1925

OFFICIALS of the Duluth Street Railway, Duluth, Minn., announce the purchase of the interstate buses operating between Duluth and Superior. The purchaser is the Duluth-Superior Coach Company, a subsidiary of the railway. The buses were bought from the Northland Transportation Company, Duluth, which purchased them from the Superior White Company during the previous week. The Ashland line, also purchased by the Northland Transportation Company from the Superior White Company at the same time, was not involved in the sale to the Duluth Street Railway.

O. S. Caeser, an official of the Duluth-Superior Coach Company, recently stated that the purpose of the purchase was to provide a reliable and extra special through service between the cities of Duluth and Superior. He said that no local passengers would be carried in either city and that the present cash fare of 25 cents on the buses would not be increased; that present buses would be replaced as soon as possible with modern parlor car type coaches and a de luxe service would be maintained between the two cities.

Herbert Warren, vice-president and general manager of the Duluth Street Railway, announced that the purchase of the bus interests by the traction company was another step by the street railway in its policy to meet fully the needs of Duluth and Superior for transportation facilities.

WOODLAND COMPANY
MOTOR LINE IMPROVEMENT CO.

The Motor Line Improvement Co. was organized in February 1890 to build a motor line from the end of Duluth St. Ry.'s proposed "E. 4th St." line to the new cemetary at Woodland. It was intended to convert to electricity when DSR completed its powerhouse. The incorporators were: A. R. Macfarlane (*), Ronald M. Hunter (*), G. G. Hartley (*), M. J. Forbes, J. D. Howard, H. M Peyton (*), J. A. Willard, A. S. Chase (*), Joseph Sellwood (*), J. Mannheim, J. D. Stryker, S. L. Seldon, J. H. Upham and S. Chapman. The first board of directors consisted of nine persons, the six marked (*) foregoing, plus D. A. Petre, J. D. Ensign, and W. W. Billson.

A single-track electric line was built by the Northwest Thomson-Houston Co. on Woodland Ave. from a junction with DSR's "E. 4th St." line at E. 4th St. and 20th Ave. E. to Austin St. This was referred to at first as the "Glen Avon" line. The first car ran over the entire line on April 20, 1891, and regular service began April 28, 1891. That part of the line within the City of Duluth was built under DSR's franchise. There were two large cemetaries, Forest Hill and Park Hill, on the new line. However the primary factor in the road's construction was the promotion of real estate sales in Hunter's Park and Woodland by architect/promoter Ronald Hunter.

Equipment consisted of the following.
1. Two single-truck, closed passenger motor cars named WOODLAND and DULUTH built by Brownell Car Company in 1890. They arrived in Duluth on November 11, 1890, and were used by Duluth St. Ry. on its lines until MLIC was ready to put them in service. (These two cars subsequently became DSR 89 and 90.)
2. Four single-truck, nine-bench, 25 ft. long, open trailers, numbered 1-4, built by Brownell Car Company in April 1891. (These four cars subseqently became DSR 91-94.)

During September-October 1891, DSR extended the track on E. 4th St. from 20th Ave. E. to 27th Ave. E. MLIC then began grading Wallace Ave. and St.Marie St. (formerly Petre St.) between E. 4th St. and 27th Ave. E. to Woodland Ave. Track was laid during December 1891 and that portion of the original line on Woodland Ave. between E. 4th St. and 20th Ave. E. and St.Marie St. was abandoned. The reason for the change was to avoid the steep grade at Clover Hill.

A directory of the 1891 period lists 3.375 miles of track (35 lb. T rail), two motor cars and four trailers. The officers were G. G. Hartley (president), T. W. Hoopes (secretary and general manager), and A. R. Macfarlane (treasurer). In March 1892 A. R. Macfarlane was listed as trustee, indicating that financial problems had beset the little line.

On October 1, 1892, MLIC and DSR entered into an agreement whereby DSR would operate, maintain, repair and renew the plant and equipment at DSR's actual cost, the fares collected to be credited against the cost. The cars were to be owned by MLIC. Operation was to be in conjunction with DSR's line on E. 4th St. east of 14th Ave. E. to the end of MLIC's line. Ten minute service was to be provided from 5th Ave. W. and Superior St. to Woodland Park. The agreement also stated that MLIC owned the electric line from E. 4th St. and Massachusetts Ave. (27th Ave. E.) to Woodland Park and listed it as partially equipped.

The Woodland carhouse was destroyed by fire November 16, 1894. It was located at the end of track at Woodland Ave. and Austin St.

Sometime between October 1900 and July 1901 MLIC was acquired by the Woodland Company, a Wisconsin corporation. In 1901 the officers were listed as T. W. Hoopes (president) and James Bardon (secretary).

The Woodland Company's track gradually deteriorated to a very poor condition. DSR refused to operate its cars over the track contending that through neglect they were no longer safe, causing undue wear on the cars resulting in interruptions of service. No cars were operated October 1-6, 1900, and again June 30 to July 2, 1901, due to track conditions.

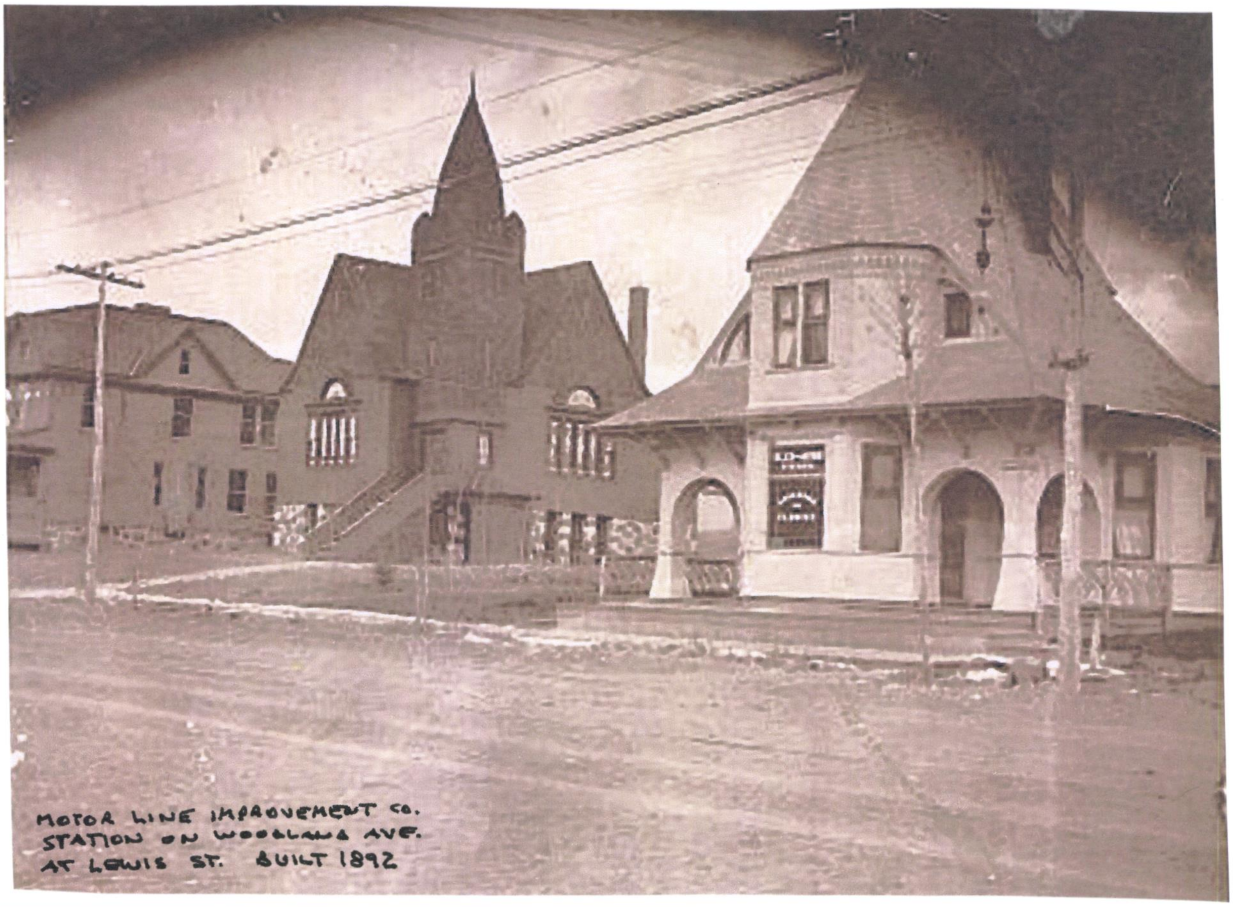
Apparently the Woodland Company's finances were inadequate to repair the track, for Woodland Company issued a Bill of Sale dated July 1, 1901, to Duluth St. Ry. which included the following.

1. Right-of-way from E. 4th St. to 27th Ave. E. to the north end of the line at Woodland Park.
2. All rails, wire, ties, bridges, trestles, and poles from E. 4th St. and 27th Ave. E. to Hunter's Park switch. Said materials to be used by DSR in reconstructing the line; any material not used was to be returned to the Woodland Company.
3. All rails, ties and wire used in construction of the westerly track from Hunter's Park switch to the north end of the line at Woodland.

DSR agreed to repair the line from E. 4th St. and 27th Ave. E. to Woodland so that it could be safely operated as a single-track or a double-track line, or as a part single-track and part double-track line south of Hunter's Park and single-track north of Hunter's Park.

When DSR did rebuild the line it was agreed that DSR could relocate part of the line on Wallace Ave., either single-track or double-track at DSR's option, and when completed the track then located on St.Marie St., Petre's bridge, and Woodland Ave. could be abandoned. A DSR drawing of the proposed relocation dated February 15, 1902, indicated that the existing track on the bridge over Tischer's Creek was single-track, and apparently created operating and maintenance problems. DSR also agreed to provide service to Hunter's Park sufficient to reasonably accommodate the public, and to operate at least seven daily trips to Woodland, all cars to run through to and from the central section of Duluth.

From 1901 through 1903 DSR was busy upgrading the entire line. During 1902 DSR built a new bridge across Tischer's Creek at Wallace Ave., and double-track was extended from Wallace Ave. and St.Marie St. on Wallace Ave. across the new bridge to the junction of Wallace Ave. and Woodland Ave. at Hardy St. The original track on Woodland Ave. and St.Marie St. was then abandoned. During this period DSR also extended the second-track on Woodland Ave. to a point between (1) the Carlisle St.-Fairmount St. intersection, and (2) Stornaway St.



MOTOR LINE IMPROVEMENT CO.
STATION ON WOODLAND AVE.
AT LEWIS ST. BUILT 1892

HIGHLAND IMPROVEMENT CO.

The Highland Improvement Co. was incorporated in September 1889 as the successor to the Duluth Heights Land Co. for the purpose of developing and promoting the sale of real estate along Highland Ave. in the Duluth Heights First Division. The plan was originally conceived in May 1889 when Thomas Lowry, James J. Hill, Sam Hill, Thomas Wilson and two Boston capitalists inspected the site. As this area was located at the top of a very steep bluff it became obvious that an incline railway was the only possible means of providing access to the area. Operation of a rail line on the bluff top beyond the terminus of the incline railway was also considered. Thomas Lowry's fund raising trip in the east during early 1890 resulted in funds becoming available for the construction. An agreement between Duluth St. Ry. and Highland Improvement Co. was made July 25, 1891, whereby HIC would spend at least $50,000 in beautification and street improvements, secure the necessary right-of-way on 7th Ave. W. for the incline railway, and pay DSR $10,000 toward the cost of building the incline railway. DSR was to construct, operate and maintain the incline railway. Further details on the construction and operation of the incline railway are provided in a following section.

Meanwhile HIC and DSR undertook construction of the streetcar line on Highland Ave. DSR built approximately 3,200 l.f. of track form the top of the incline railway to Highland Ave. and Winter St., while HIC built the remainder. The first operation took place September 27, 1892.

HIC was financially unable to continue operation of the line which ran through an area of bleak, bare rock, difficult in the extreme as a site for homes although it provided an excellent view of the Lake Superior and the Duluth harbor. DSR and HIC entered into an agreement effective October 3, 1892, whereby DSR agreed to operate, maintain, repair and renew the line. The agreement stated that HIC had constructed and partially equipped a single-track line connecting with DSR's line at Highland Ave. and Winter St. in Duluth Heights, which extended to the intersection of Highland Ave. and Linden St. in Duluth Heights. DSR agreed to operate and maintain HIC's line in conjunction with DSR's line on Highland Ave. in the City of Duluth from the Station House on 8th St. to Highland Ave. and Winter St.. DSR was to provide the necessary cars to maintain service. HIC was to reimburse DSR for the actual cost of operation and maintenance reduced by the fares collected.

Apparently HIC's financial difficulties continued. By an agreement dated April 21, 1893, HIC through a stock transfer and other consideration deeded to DSR that portion of the line built by HIC. A Bill of Sale dated June 12, 1894, tranferred all of HIC's property to DSR; this included: (1) the carhouse situated at Duluth Heights; (2) one double-truck open electric car; (3) ties and poles used in building of the Highland Ave. line from DSR's powerhouse on 7th Ave. W. to the north end of the line in Block 15 of Duluth Heights Sixth Division; and (4) right-of-way privileges through and upon the property of HIC. This had been a summer-only operation from 1892 through 1894.

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LAKESIDE RAILWAY CO.

This company was incorporated in June 1892 by Daniel Cash (president), William C. Sargent (secretary), C. H. Graves, J. N. Currie and G. F. Chester as an adjunct to the Lakeside Land Co. for the purpose of building a streetcar line from the end of Duluth St. Ry.'s "East End" line to the City of Lakeside (later a part of the City of Duluth) to promote the sale of real estate in Lakeside. The company received a franchise from the City of Lakeside July 11, 1892, which, among other requirements, called for 15 minute service to be operated between 6:00 a.m. and 7:00 p.m. from 5th Ave. W. and Superior St. in Duluth to Park Ave. in Lakeside.

LRC entered into an agreement with DSR dated September 1, 1892, whereby LRC was to construct a double-track line from 22nd Ave. E. and Superior St. (DSR granted LRC the right to construct track and overhead on Superior St. within Duluth) to Park Ave. in the Lester Park Fourth Division, according to plans and specifications furnished by DSR and under the supervision of and to the satisfaction of DSR. LRC was to furnish sufficient cars and pay DSR for DSR's actual cost of operating, maintaining, repairing and renewing the line and equipment; fares collected were to be credited against the cost of operation.

The line as built consisted of double-track on Superior St. from 22nd Ave. E. to 45th or 47th Ave. E., with single-track from there to the end of the line at 61st Ave. E.. A passing siding was located at 54th Ave. E. on the single-track portion. LRC purchased six single-truck, closed passenger motor cars from DSR. The formal opening took place December 17, 1892, when three cars began operating from the Spaulding Hotel in Duluth to Lakeside. The competing shortline railroad passenger service operated by the Duluth & Iron Range Railroad was eventually discontinued due to the amount of traffic which switched over to the streetcars.

LRC and DSR got into a dispute as to whose responsibility it was to construct vestibules on LRC's six cars due to the passage of the "vestibule law" by the Minnesota legisature in 1893. LRC either had to vestibule its cars or rent vestibuled cars in the winter months. LRC rented vestibuled cars from DSR each winter (November through March) from November 1, 1894, through December 31, 1897. DSR was vestibuling LRC cars in October and November 1897 and completed the work in December 1898.

LRC's track gradually deteriorated to a poor condition as it was unable for afford proper maintenance; revenue from fares collected did not cover DSR's cost of operation plus minimal maintenance. In April 1897 DSR complained to LRC management about the track being in very bad shape, especially the switches at 47th Ave. E. and 54th Ave. E.. LRC also began disputing the "actual cost" DSR was charging them for operation of the line. The matter was under arbitration in November 1897 and finally ended in court. The case was concluded June 9, 1898, and judgement entered March 29, 1899, against DSR in the amount of $13,776.07 plus interest, which amount constituted overcharges for operation of the line.

On June 22, 1899, LRC offered the physical property to whomever would assume payment of the mortgage bonds due for construction of the line. DSR was in receivership and apparently not in any financial condition to respond to the offer. However after DSR emerged from receivership in August 1900 DSR managment under Thomas Lowry decided to pay off the bonds. At LRC's board of directors meeting August 28, 1900, the officers and directors of LRC resigned and new officers and directors elected: Luther Mendenhall (president and treasurer), Calvin G. Goodrich, G. G. Hartley (vice president and secretary), Thomas Lowry and Marcus D. Munn.

The 5% first mortgage bonds in the amount of $50,000 were cancelled as DSR had redeemed them in exchange for a deed to the property. The Bill of Sale was dated September 1, 1900, and included: track, overhead poles and wires from 22nd Ave. E. and Superior St. on Superior St., Oxford St. (later Superior St.) and Grand Ave. (later Superior St.) to 61st Ave. E. and Grand Ave.; and all cars and motors.

THE INCLINE RAILWAY

The incline railway at 7th Ave. W. was designed by Samuel Diescher of Pittsburgh, Pennsylvania, and built by the Keystone Bridge Company. The line was .563 miles long, double-track (1.13 miles of track, 66 lb. T rail), and rose 509 feet in the one-half mile distance. The steel structure placement was completed October 6, 1891. One week later the permit was granted for construction of the steam powerhouse at the top of the incline. The powerhouse building was two stories high, 37 ft. x 140 ft., constructed of stone and iron with a wood floor and roof. One E. P. Allis Co. 26" x 30" non-condensing Corliss engine and one Babcock & Wilcox 192 h.p. water-tube boiler were installed to operate the hoisting drum.

The two very-large cars were designed to carry a four-horse team and wagon in addition to the passengers that were accomodated in an enclosed cabin at one side of the platform. The entire platform of each car was enclosed by corrugated metal sides and roof attached to a steel framework. Each body was 15 ft. wide, 14 ft. high (16½ ft. high over the roof), 41 ft. long, and mounted on a 27 ft. long steel chassis equipped with eight 33" diameter wheels set to a gauge of 10'0". Each car complete weighed 27 tons and was connected to a 1 5/8" diameter steel cable which passed around a drum on a shaft of the hoisting engine in the powerhouse at the top of the incline. One car would ascend while the other was descending, controlled by an engineer from a control room in the powerhouse overlooking the tracks in which were placed the levers which controlled the hoisting engine and brakes.

When the powerhouse and hoisting equipment were completed the first trial run was made, taking place November 4, 1891. Sixteen minutes was required to make the ascent. Test runs with both cars were made November 29, 1891, and operations on a regular schedule began December 2, 1891.

The total cost of the incline railway, including the cars, amounted to $400,000.

During 1893 the powerhouse machinery was rebuilt by the E. P. Allis Co., Milwaukee, at which time a second E. P. Allis Co. 26" x 30" non-condensing Corliss engine and another Babcock & Wilcox 192 h.p. water-tube boiler were installed.

DSR quickly came to realize that it would be difficult to realize sufficient revenue from the area at the top of the incline railway and proceeded to build a large pavilion adjacent to the powerhouse with the hope that concerts, shows and other events would stimulate patronage. This building was two stories high, 130 ft. x 150 ft., of frame construction. The first floor contained a restaurant and privilege space while the second floor contained a theater seating 1,200 persons. "Beacon Hill" opened July 4, 1892, with a total attendance of 16,000 persons. It was used primarily for afternoon concerts, vaudeville performances, parties and dances. The evening amusement attendance averaged 1,000 persons nightly, while Sunday and holiday attendances ranged from 3,000 to 5,000 persons daily. During the first two years of operation it was very popular. Then interest began to lessen somewhat so beginning in 1895 DSR leased the building to outside parties to operate. It was then used primarily as a summmer theater by acting companies whose circuit included Minneapolis (Lake Harriet), St.Paul, Milwaukee, Kansas City, Des Moines, Davenport (Iowa) and Grand Rapids (Michigan) as well as Duluth. The site was always popular with tourists and excursionists.

About 7:30 a.m. May 28, 1901, a fire was discovered in a coal bin in the powerhouse engine room. A fire alarm was turned in while water from a 10,000 gallon storage tank at the pavilion was used to fight the fire. A fire truck was sent up on one of the incline railway cars at 7:45 a.m. by which time the fire had spread through the powerhouse. The firemen had started to get the fire under control when wind carried the flames into the pavilion. The wood structure was dry and started burning with phenomal rapidity. The flames soon cut off the water supply and as nothing more could be done all hope of saving both buildings was abandoned. The fires in the boilers in the powerhouse were banked and the incline car lashed to the rails on the steel structure with cables and chains. However the heat grew to such an intensity that the cables were melted and the rails twisted, breaking the chains. The 27-ton incline railway car, its interior in flames, raced wildly down the incline, crashing into the solid masonry wall of the station at the foot of the incline on Superior St. The chassis stayed on the track but the body disintegrated, scattering flaming wreckage high into the air in all directions, smashing the station in the process. Superior St. was covered with burning wreckage and some debris was found in the railroad yards two blocks below the foot of the incline railway. No one was injured as it had been evident to police at the scene what might happen so traffic was stopped and the area cleared of people. By 8:30 a.m. both powerhouse and pavilion had burned to the ground and the one incline car destroyed. (The two steam hoisting engines were salvaged and shipped to a new owner in Hamilton, Ontario, in December 1902 for additional service.)

Milton H. Bronsdon of Providence, Rhode Island, was engaged to design the reconstruction of the incline railway, using a self-propelled electric car on the west track and a counterweight car on the east track. Rebuilding began September 14, 1901. An overhead trolley wire was erected over the west track and the grade changed on 170 ft. of track immediately above Superior St. Stations were constructed at Superior St., 4th St., 5th St. and the Boulevard (7th St.). The passenger car and counterweight truck were built by the Twin City Rapid Transit Company's 31st St. Shops in Minneapolis, shipped to Duluth and unloaded November 26, 1901, at the Northern Pacific Railway connection at 37th Ave. W. and Superior St. This car was equipped with four traction motors; a 1" diameter steel cable ran from the forward end of the car over carrier sheaves between the rails, around large sheaves at the top of the incline, then down the opposite track over carrier sheaves between the rails to the forward end of the counterweight truck. This counterweight truck was merely a truck carrying a large casting balancing the weight of the passenger car on the opposite track. The passenger car and counterweight truck were also connected with a steel "tail" cable which ran to the bottom of the incline and around a sheave on a tension carriage. The passenger car was equipped with ordinary wheel brakes and in addition a grip brake, through which a large stationary cable passed. This grip brake was set automatically when the car reached a predetermined speed by means of a device which was operated by another small stationary cable. While the car was capable of a speed of 12 m.p.h., it was found that this speed was disagreealble to the passengers as it made them nervous on the steep grade. The top speed was thus limited to 8 m.p.h. with the schedule speed set at 6 m.p.h. The first regular operation on the reconstructed incline railway began January 1, 1902.

The single car soon proved inadequate to handle the passenger traffic so during 1910 DSR collaborated with TCRT on the design of two larger cars and revised hoisting equipment. The entire installation was designed by Walter J. Smith, TCRT's master mechanic (DSR's master mechanic and in charge of the incline railway reconstruction during 1901). After delays brought about by a great burden of work, the TCRT Snelling Shops in St.Paul were finally able to complete the two cars and hoisting equipment during January, February and March 1911. Rebuilding of the incline railway began March 18, 1911, with completion two months later.

The four existing intermediate stations were removed and five new stations built so as to accommodate cars on each track. They were located at (1) Mesaba Ave. W. (W. 2nd St.), (2) W. 3rd St., (3) W. 4th St., (4) between W. 5th St. and W. 6th St., and (5) between W. 6th St. and W. 7th St. The location of the stations had to be arranged so both cars would stop simultaneously at a station. Entrance to the stations was by a stairway leading upward between the two tracks. In later years two additional intermediate stations were constructed. At the foot and top of the incline railway larged planked platforms were built at the stations.

Overhead trolley wire was erected over the east track as the new cars were equipped with trolley poles to collect electricity for light, heat and operation of the air compressor for the air brakes. At the top of the incline railway and electric hoisting station and operator's cab were constructed. The hoisting equipment consisted of two General Electric 213 traction motors (50 h.p. each), one K-37 controller with "dead man" handle, and one General Electric CP-21 air compressor and air brake equipment. The electric traction motors were back-geared to two 48" diameter cast-iron power-cable drums equipped with brake bands operated by compressed air. Several automatic safety devices were installed on the hoist, including the special controller handle. The electric motors were later replaced with two General Electric 210 motors (70 h.p. each) and in June 1930 Simplex safety equipment was installed on the controller.

The sheave system comprised four 105" diameter sheaves, 224 12" diameter cast-iron sheaves, four 32½" diameter sheaves, and three 54" diameter sheaves. A cable tension sheave house was built at the lower end of the incline just below 1st St. containing the tension carriage with counterweights. The cable system consisted of 6,600 ft. of 1" diameter pulling and "tail" cable, two 2,971 ft. safety cables (one of 1½" diameter on the west track and one of 1" diameter on the east track), and 6,380 ft. of 5/8" diameter cable for the automatic brake.

Each car was equipped with hand brakes, air-operated wheel brakes, air-operated grip brakes, and automatic grip brakes. The pulling cable ran from the forward end of one car, over carrier sheaves between the rails to the power drums at the top, then down the opposite track over carrier sheaves between the rails to the forward end of the other car. Both cars were also connected by a "tail" cable which ran to the foot of the incline and around a sheave on a tension carriage to prevent the cars from surging. The safety cables, one for each track, were securely fastened at the top of the incline, passing through the grip brake on each car; the grip brake would be automatically set when the cars reached a pre-determined speed by means of a device operated by the automatic brake cable fastened at the top of the incline and extending the full length of the line, one cable on each track.

2,749.9 l.f. of the railway was on steel trestles, 221.4 l.f. on masonry foundation, for a total line length of 2,971.3 l.f. Minimum grade was about 15% and maximum grade about 25%.

The incline railway was closed to traffic the evening of May 14, 1911. The rebuilding was completed June 9, 1911. The new cars and machinery were placed in regular service June 10, 1911. The electric hoist at the top of the incline railway, under the operation of an engineer, controlled the pulling cable, which moved the cars at a speed of 6 m.p.h. An indicating dial in the incline cab showed the position of each car. A conductor on each car operated the air brakes, opened and closed the car doors, collected fares, made change, issued and received transfers, and finally notified the incline engineer by telephone when his car was ready to move. All of this was repeated at each station stop. The incline engineer would not operate the hoisting equipment until the telephone communications "East car clear" and "West car clear" had been received.

Fifteen minute service was provided, each car making one round trip every thirty minutes. Running time for a one-way trip was eight minutes.

This operation continued without accident until the incline railway was abandoned on Labor Day, September 4, 1939. The last run was the 5:35 p.m. trip. The incline railway structure was entirely removed by December 1, 1939.

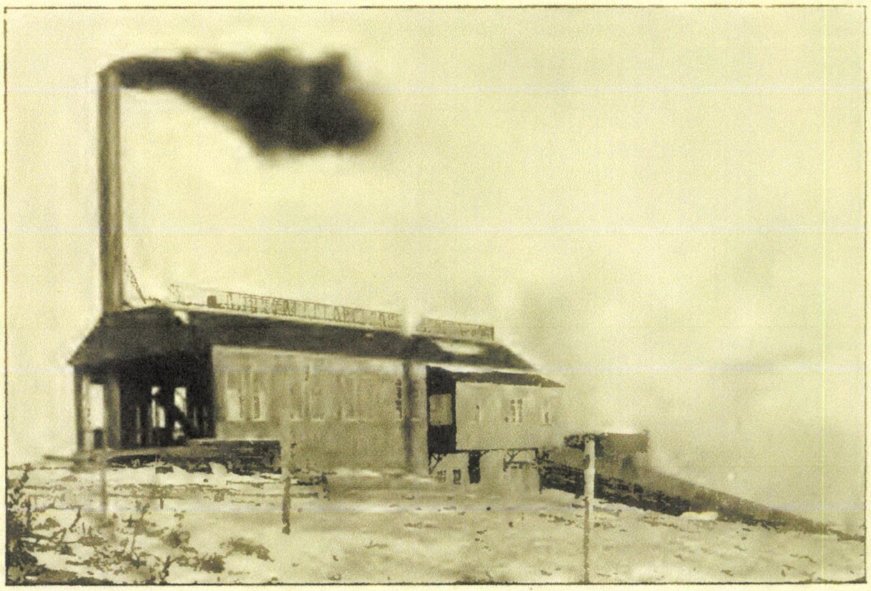
Street Railway Review DEC 1891

INCLINED PLANE RAILWAY IN DULUTH.

Longest in the World — A Splendid Achievement of Engineering Skill — Ascent of 512 Feet — Various Safety Devices.

AWAY to the north, at the head of Lake Superior, that greatest of the "unsalted seas," whose giant waves dash ceaslessly upon a shore of hardest granite, snugly sheltered beneath the great bluffs lies the pretty city of Duluth, whose commercial interests during the past few years have developed with a progress that has commanded the astonishment of the whole country, and whose fame even is known far across the oceans. In its superb harbor fleets of great steamers rivaling in size many an ocean craft, are constantly loading with the products of a boundless farming country reaching far beyond the Rockies, or discharging cargoes of coal and merchandise. The ore mined in the state is alone sufficient to insure a large shipping interest, and requires a big fleet of steamers and sailers during the entire period of navigation. The invention and manufacture of "whaleback" tows has also given much prominence to Duluth, and the ten railroad lines entering the city all do a heavy freight business. The city is built from the water's edge upon a long and gently rising narrow strip from one-fourth to one-half mile in width, which extends along the shore for several miles, backing up against an abruptly rising granite cliff, which, at a distance of only twelve blocks from the water's edge, rises to a height of over 500 feet, and which affords but few accessible points of ascent. As long as the level along the water was unoccupied, business blocks and residences filled in rapidly and solidly. Stretching back for miles from the brow of the bluffs is a rich and gently rolling plain, but which thus far has been practically inaccessible for residence purposes. The available land had either been occupied or become so valuable that the poor man could no longer afford a home.

These then are the conditions which has led to the construction of the Duluth Inclined Plane Railway on which the finishing touches have just been placed, and the road opened for daily business on December 1st. This line is perhaps the longest, strongest and most complete incline railway in the world, and was built at an expenditure, — including right of way, — of nearly $250,000.

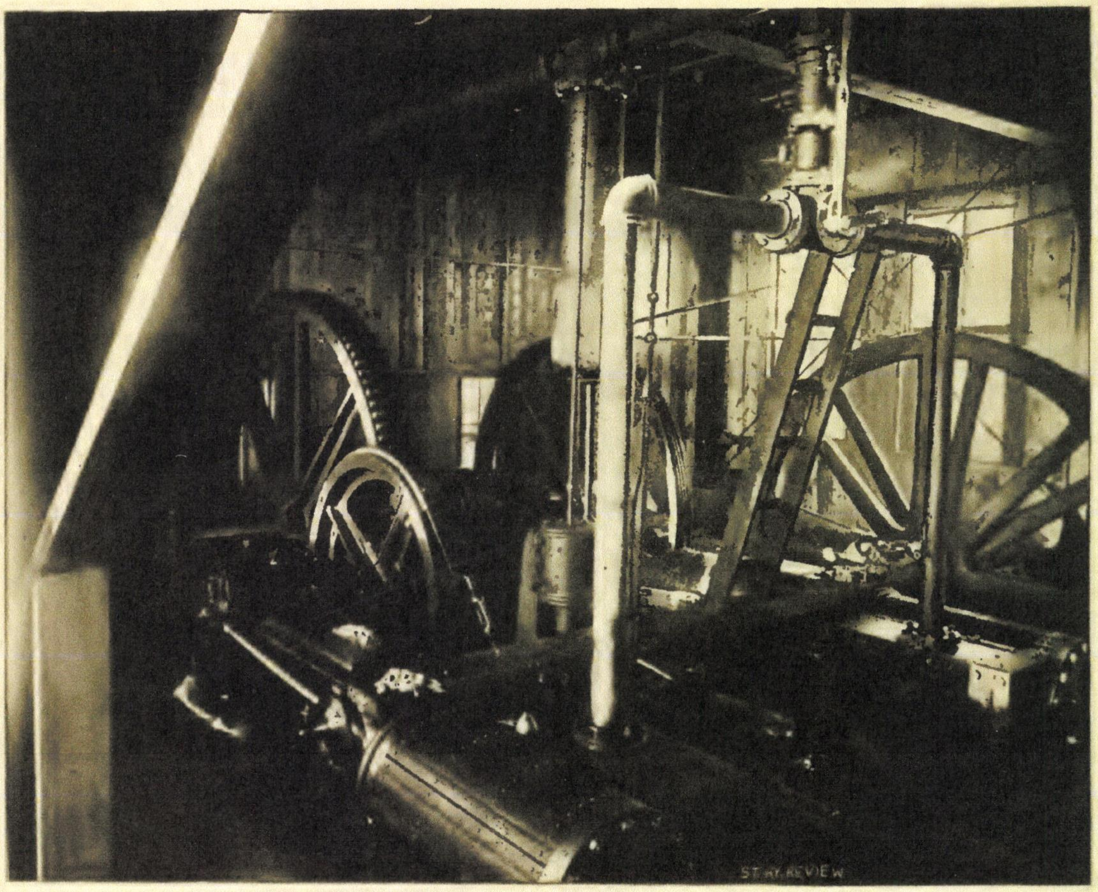


DULUTH INCLINED PLANE—POWER HOUSE.

The movement was backed by some of the leading business men, who associated themselves together, purchased large tracts of land back of the bluff and by providing guarantees, etc., induced the Duluth Street Railway Company to build the Seventh Avenue Incline. Of course, the hope of private gain was not lacking in the inauguration of this enterprise, but a public-spirited desire to aid in upbuilding the city was the primary object of the move.

Actual construction on the Incline began about eighteen months ago and on Tuesday, December 1st, the cars began making regular trips for the accommodation of passengers, the machinery having been subjected to severe tests daily during the past three weeks.

The structure has a total length of 2,975 feet and the total rise is 512 feet, with a percentage of grade as follows: Heaviest, 23.47; next, 17; lightest 15. The next largest street incline road in the world is the Knoxville, at Allegheny, which is 2,640 feet long and has a rise of 375 feet. The Duluth incline is a very heavily built road and in that respect is not surpassed by any other in the country. Foundations for supporting pillars are composed of solid granite, while the beds for much the greater portion of these foundations were blasted out of solid granite, the whole stone work costing $32,000. Supporting posts are about 2 feet square at the base, taper toward the top and are constructed of angle iron of 5/8 thickness. The main girders, of which there are three—one on either side and one between the tracks—are 4 feet in width and 5/8 inch thick. All braces are of 3/8 inch steel. The sills are 10 inches square, constructed of 5/8 inch iron. Oak ties and standard railroad steel rails, weighing 60 pounds to the yard, are used. The gauge of the track is 10 feet. Iron work on the incline proper cost $112,000 and was constructed under the supervision of Engineer-in-Chief Samuel Diescher, of Pittsburg.



INTERIOR VIEW—POWER HOUSE DULUTH INCLINED PLANE RAILWAY.

There are two cars, each 40 feet long and weighing 25 tons. They are constructed of angle iron and will safely carry 30 tons, one side being petitioned off for passengers and the other being so arranged that three teams with loads can be taken up at one time. The cars travel at the rate of 8 miles per hour and it is the intention to consume five minutes in each trip, though trips have already been made in three minutes and twenty seconds. Cost of equipment, $8,100.

All machinery is on the latest improved plans and of most substantial character. The engines were manufactured by a home concern—the Iron Bay Manufacturing Company, of West Duluth. There are two, with 250 horse power capacity, and cylinders 18 x 24.

As in the operation of a road of this character the steam supply is of more than ordinary vital importance, selection of the boilers was made with unusual care, and resulted in the purchase of Babcock & Wilcox boilers, with a capacity of 280 horse power. The road operates nicely with 75 pounds of steam.

Water for the boilers is supplied through a Baragwanath water heater, manufactured by the Pacific Boiler Works, of Chicago.

The main shaft is twelve inches in diameter and on this is set the main gear wheel, which is fourteen feet in diameter. The driving shaft is ten inches in diameter and the pinion wheel thirty-two inches in diameter. John Robeling's Sons Co., of Trenton, N. J., manufactured the cables, of which there are two, each of 1½ inch steel. tested at 200 tons. The main cable is operated by two driving drums, each twelve feet in diameter, and from these the cable passes around two sheaves, one of which is connected with a hydraulic tension cylinder six feet long and eight inches in diameter, manufactured by the Buffalo Pump Company, of Buffalo. When the cars are within about three feet of either end of the line the engines are stopped, then the hydraulic cylinder is brought into play, which tightens up the cables and the cars reach the abutments. The force of the concussion of cars and abutments being broken by two air cushions, with which each car is equipped, and the cars stop easily and smoothly, without the slightest jar. The second cable acts entirely independent of the engines, travels over four sheaves located in a safety frame, and is simply used as one of five excellent appliances, which insure the safety of passengers. The engines are equipped first, with a safety valve and, second, with what is known as a butterfly valve. Next there is a Westinghouse air brake, which clamps a brake band on a six-foot wheel, set on the driving shaft, as shown in the illustration. The setting of this brake will stop the engines when the throttle is wide open. Should all these contrivances fail to stop the machinery the engineer can set by hand an equally powerful brake on the safety cable sheave, so that there is really no possibility of a runaway unless both cables should break at once, and this is a possibility too remote to be considered for a moment. Engines, machinery and boilers cost $36,000.

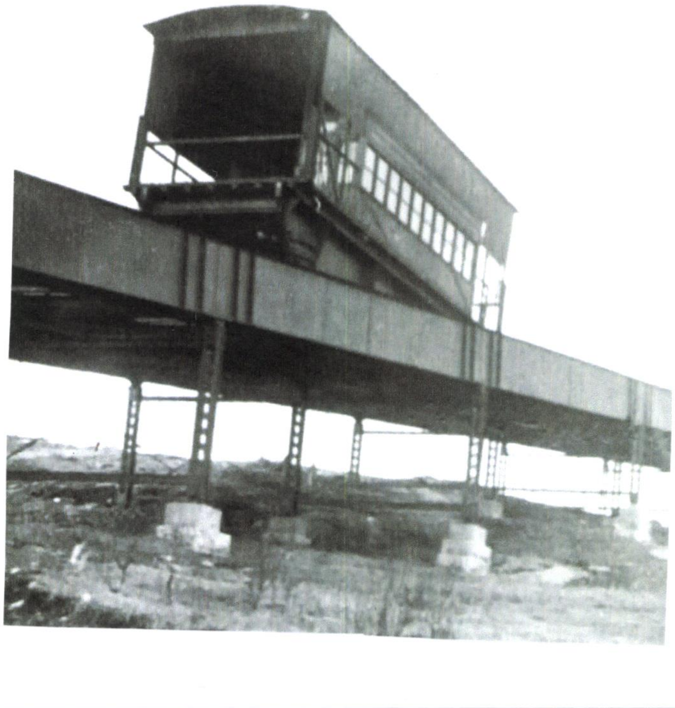
The power-house is a substantial two-story structure, located at the top of the line, is 28x100 feet in size, the first story being constructed of stone and the second of frame, with corrugated iron covering and surmounted by an observatory platform, the whole costing $17,000. Right-of-way for the line and incidental expenses amounted to $35,000.

The duty of making all contracts and arranging the practical details of the building of this structure fell upon F. S. Wardwell, general manager of the Duluth Street Railway Company, who was recently elevated to this position after serving the company for several years as superintendent, and to his constant watchfulness and untiring zeal is due in a large degree the speedy construction of the road and its successful inauguration.

SRJ **DULUTH, MINN.** MAR 1897

The efforts of the Duluth Street Railway Company to create travel have heretofore been centered entirely upon a summer theatre, "The Pavilion," which consists of a two story building with balconies on the side towards a lake. The lower floor is fitted up with a dining room, cigar and candy counters, etc., and the upper floor has an auditorium, having a seating capacity of 1500 people, and fitted with a complete stage and all necessary arrangements for the convenience of operatic, dramatic or vaudeville performances. This pavilion is situated at the head of an incline railway, some 600 ft. above the level of Superior Street, and commands a view of many miles of scenery in Minnesota and Wisconsin, including the Superiors, etc. The excellent view and the cool breezes always to be found here, are the chief attractions, aside from the theatre itself.

The pavilion, including the theatre and all of the privileges, have usually been leased to private parties, although it was operated by the street railway company for one season. The company has a very attractive public park, which is reached by one of its lines, built last season. There is also an attractive park at the terminus of the Lakeside Railway Company's line, which is operated by the Duluth Street Railway Company. There have been no attractions provided by the street railway company at either of these parks, although they are very popular for picnics, which fact increases the receipts considerably.



TRAMS;

ELECTRIC, CABLE, HORSE AND OTHER.

HOW TO BUILD, MAINTAIN AND OPERATE.

By C. B. FAIRCHILD.

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No. 11. INCLINE PLANES, RACK-RAIL AND ELEVATED ROADS.—Part I.

Incline Planes, or more properly, incline railways have a very early history and are designed for transporting coal, freight or passengers for short distances over grades too steep to be surmounted by any other method of traction.

They are being rapidly extended and are becoming a popular means of communication between different levels of hilly cities, and are frequently built to transport street cars between sections of a line that are separated by steep barriers. Inclines are operated upon grades that have a rise of from fifteen to seventy-five feet in 100.

The tracks may be laid directly on the surface of the bluff, where the grade is suitable or upon viaducts made of masonry or iron. Inclines are usually built in straight lines, but may be operated around curves of large radius. The gauge is usually from eight to ten feet. Fig. 210 illustrates the general features of an incline from which it will be seen that two cars of peculiar shape are operated, one ascending as the other descends. The cars are attached permanently to the terminals of strong wire ropes of which there are two; one is coiled upon large drums to which the power is applied for driving and the other a safety rope, with its terminals attached to each car, and which passes over a sheave at the head of the incline and serves to balance the cars and also assists in braking.

The hauling ropes, which are usually from one to one and a half inches in diameter, are driven in two ways, depending on the length of the line. On short lines—less than 2,000 ft.—they are commonly attached to the opposite sides and ends of a fourteen-foot drum, so that as one rope unwinds the other winds on in the same grooves; or separate drums may be provided for each rope. On long lines the rope is usually driven by a pair of winding drums in about the same manner as the rope on a cable line is driven. Carrying pulleys, either of wood or of iron, are provided in the bed of the track for supporting the ropes. The power is usually supplied by a double reversible engine, or by two engines attached to the same crank shaft, which is geared by a pinion to the driving drums.

The engineer is stationed in a cab at the head of the incline in a position to overlook the line, and controls the movement of the cars by means of levers attached to the throttle valves and brake appliances.

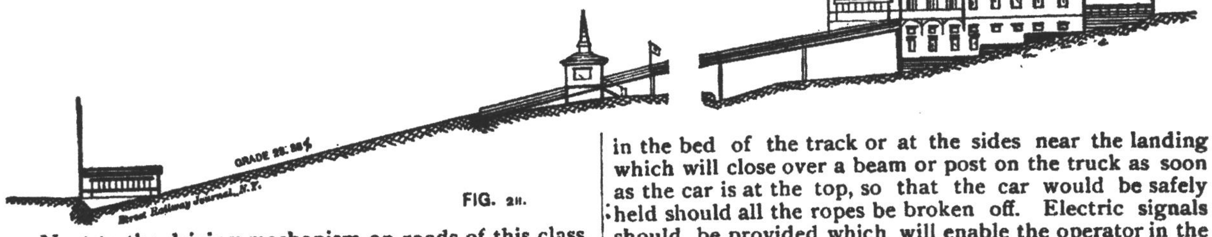

FIG. 211.

Next to the driving mechanism on roads of this class, the most important appliances are the safety devices, and the best practice suggests the following:

The throttle valve should be in duplicate, or there should be a butterfly valve in the steam pipe, with operating cord extending to the engineer's cab. This valve should be arranged to close with a spring or weight, and the braking device should be arranged to operate with it. The double throttle is provided for use in case some obstruction should prevent the closing of the regular throttle before the cars have reached the terminals. On some lines a mechanism is provided by means of which the car will close the throttle and set the brakes on approaching the landing. This operates in case anything should happen to the engineer. Another appliance for use in case the operator should suddenly become incapacitated, from sickness or any cause, consists of an attachment to the latch on the throttle lever by means of which the steam would be shut off in case the operator should release his hold of the latch. Band brakes, operated by means of a foot lever, encircle the drums and sheaves of the safety rope, and are powerful enough to stall the engine when applied. Pneumatic brakes should also be provided to supplement the lever brakes.

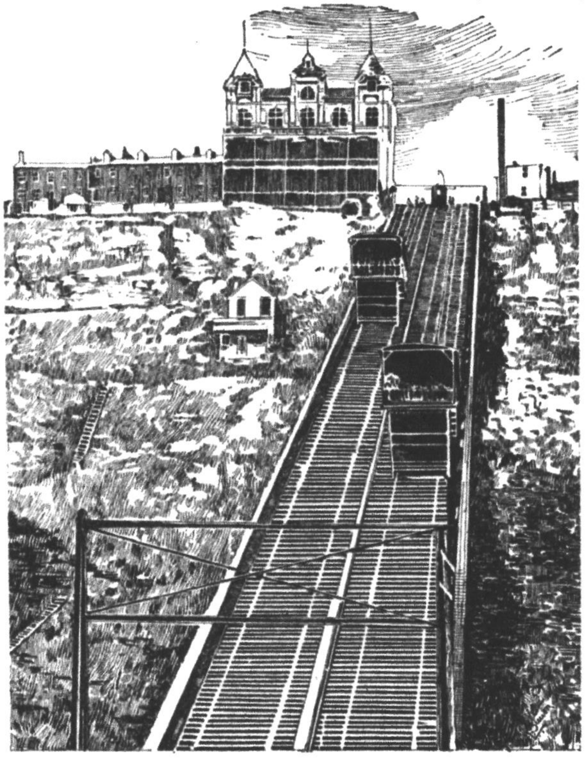

FIG. 210.

The hauling ropes should be attached to different cross beams on the truck from those to which the safety rope is attached; thus, the car would be held in case one beam should pull out.

Powerful automatic latches or hooks should be arranged in the bed of the track or at the sides near the landing which will close over a beam or post on the truck as soon as the car is at the top, so that the car would be safely held should all the ropes be broken off. Electric signals should be provided which will enable the operator in the cab to communicate with the guard at the foot of the line and by means of which warning signals for starting may be given. Each morning before starting the entire line should be carefully inspected, and the first trip is usually made without a load to make sure that everything is in working order. To avoid heavy bumping at the lower landing, the cars may be provided with spring or pneumatic bumpers, preferably the latter, which should have a stroke of about sixteen inches.

Fig. 211 illustrates the terminals of a long incline, having way stations at which the cars stop.

Fig. 212 is an elevation of the power station and car

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at the upper landing of the same line, and Fig. 213 is a longitudinal section of the car pit at the foot of the incline.

The car, it will be noted, is supported on an eight-wheel truck, built of wrought iron beams, and is triangular in shape so that the platform is maintained nearly at a level and is readily boarded at the landings. The cars are usually from thirty to forty feet long and from twelve to sixteen feet wide and weigh about twenty tons or forty-five tons when loaded. They may be roofed or open and are provided with strong iron railings and gates, to prevent the possibility of an unruly team crowding the wagon off the platform. In case street cars are to be transported there should be an adjustable bumper provided to prevent the car from running off the platform. Chains and blocks are also provided for holding loaded vehicles in position.

Fig. 214 is a plan of the engine and machinery of a plant designed for operating a line 2,975 ft. long and in which the rope is driven by making four wraps on the drums, the same as for a cable line. Fig. 215 is an elevation of same. The boiler room is located to the right.

The safety rope, it will be noted, passes over four sheaves, two of which are provided with band brakes in the form of a figure ∞ and by means of which the motion of the rope can be quickly checked.

For the quick adjustment of the hauling rope, a hydraulic tension device is provided, as shown in Fig. 214. By means of a small force pump the tension sheave is forced forward, and the slack is taken up. This is an important matter, from the fact that the cars must always land within an inch of the bumpers at either end of the plane, but as the length of the rope varies with the temperature, and is gradually elongated from wear, means must be provided to adjust it. This cannot well be done by the ordinary weighted sheave, because it must be held in place after being adjusted; hence the hydraulic device is recommended.

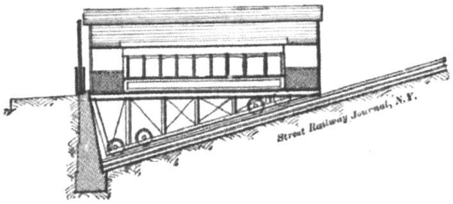


FIG. 213.

The slack in the safety rope is taken up by means of screws and this can be done while the cars are in motion.

The life of the wire ropes on inclines is usually from two to five years.

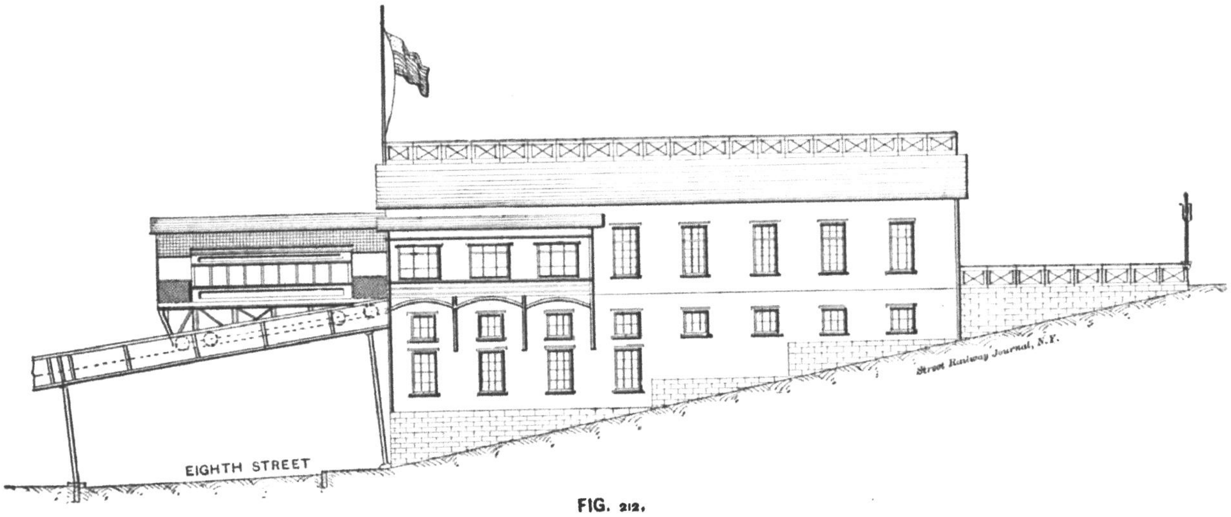
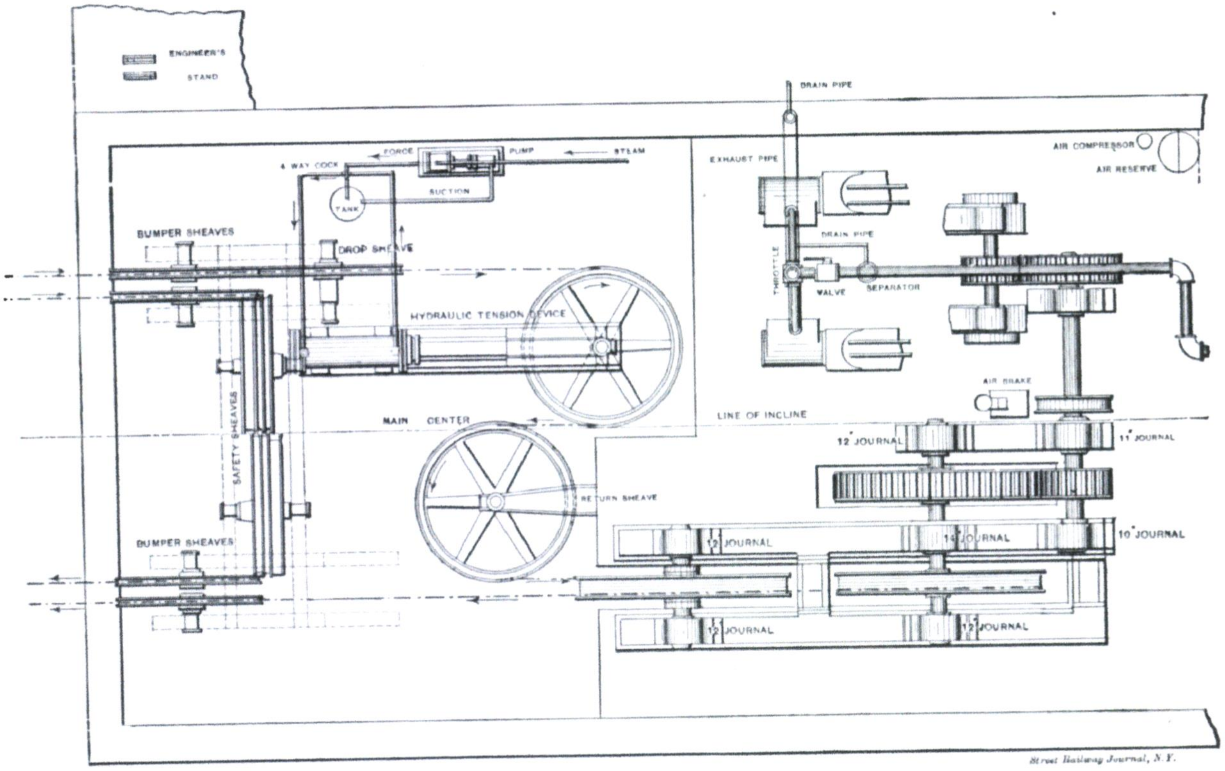
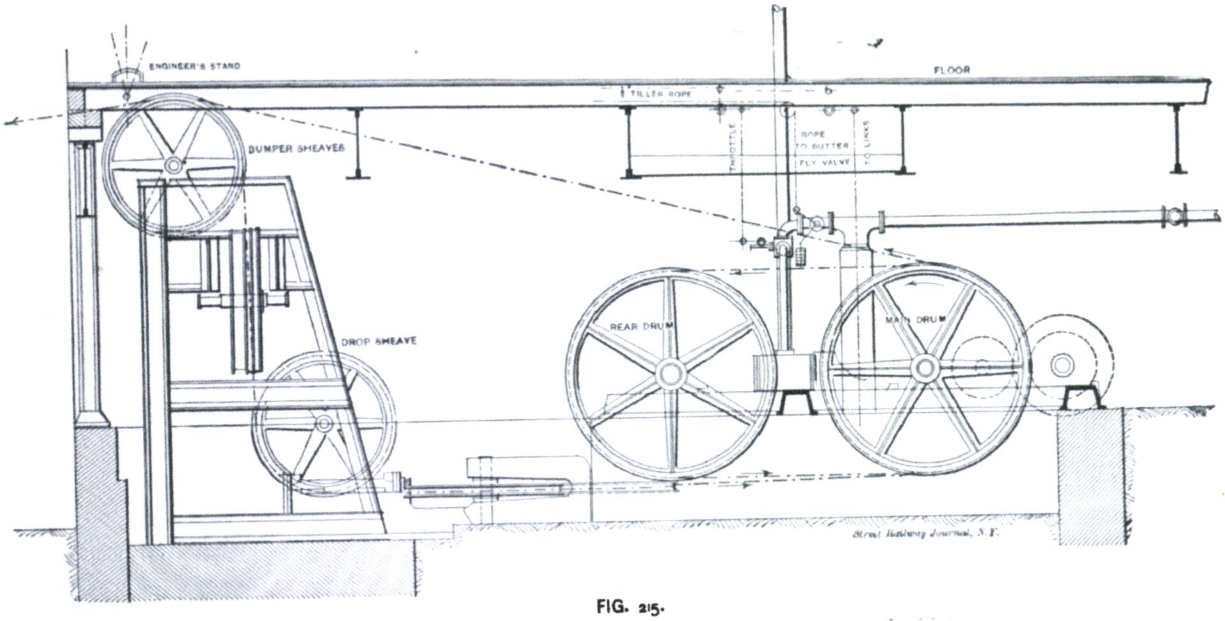


FIG. 212.


ENGINEER'S
STAND
DRAIN PIPE
FORCE
PUMP
STEAM
4 WAY COCK
TANK
SUCTION
AIR COMPRESSOR
AIR RESERVE
EXHAUST PIPE
BUMPER SHEAVES
DROP SHEAVE
DRAIN PIPE
THROTTLE
VALVE
SEPARATOR
HYDRAULIC TENSION DEVICE
SAFETY SHEAVES
AIR BRAKE
MAIN CENTER
LINE OF INCLINE
12" JOURNAL
11" JOURNAL
RETURN SHEAVE
BUMPER SHEAVES
12" JOURNAL
14" JOURNAL
10" JOURNAL
12" JOURNAL
12" JOURNAL

Street Railway Journal, N.Y.

FIG. 214.


ENGINEER'S STAND
FLOOR
TILLER ROPE
BUMPER SHEAVES
THROTTLE
ROPE
TO BUTTER
FLY VALVE
TO LINKS
DROP SHEAVE
REAR DRUM
MAIN DRUM

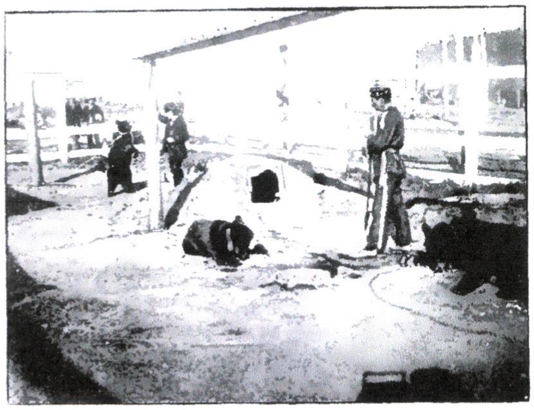
Street Railway Journal, N.Y.

FIG. 215.

OCT 1892

DULUTH'S BEACON HILL PAVILION.

IN the year 1880 the village of Duluth claimed 838 souls, who were trying their best to escape a death of ennui, but the census of 1890 makes the same village a city of 33,115 inhabitants, with a beautifully constructed electric railway under the management of men of ideas.



DULUTH STREET RAILWAY "ZOO."

The Duluth Street Railway Company, of which Fred. S. Wardwell is general manager, has quite recently opened up a handsome resort on Beacon Hill, at the top of the incline, for the purpose of inducing traffic, and it draws like unto a 25-cent dentist. The building is at the summit of Beacon Hill, at Ninth street and Seventh avenue, about 560 feet above Superior street and 600 feet above the mean level of the lake. The building is of no particular style of architecture unless it be the Wardwellian, which means useful, comfortable and capacious. It is also graceful in outline and a credit to its architects. The floor space is 80 by 100 feet, founded on posts reaching bedrock. The columns are of white pine 12 by 12 inches, with oak keys and bracings. There are two floors under cover, the upper being reached by a broad staircase branching in both directions, giving an ample exit and entrance. The tower rises 100 feet from the ground and the scenic attractions cannot be equalled.

DULUTH STREET RAILWAY "ZOO."

At the foot of the visitor stretches the beautiful city of Duluth, new, clean and modern. Across the St. Louis river and the bay of Superior rises the sturdy young town of West Superior, while to the north stretches away the mighty inland sea, meeting Minnesota and Wisconsin shores. Toward Wisconsin the eye can distinguish on a clear day the outer islands of the Apostles group.

In warm weather the temperature is from 12 to 15 degrees lower than at the bottom of the incline and the constant lake breeze makes summer life on the incline a very comfortable one. Just beneath the pavilion and only about 300 feet distant the famous "boulevard drive" winds away along the hills, giving the visitor a panoramic view of the grace, beauty and chivalry of Duluth almost any warm evening.

Single-handed and alone the railroad company took up the matter of beautifying the hill and have succeeded in a high degree, although the city should go ahead now and make a resort that would eclipse anything on the lake shore; notwithstanding this the company expect to do much in the coming season.

As a resort the most sanguine did not expect the large success that has attended the opening of the resort, for on July 4, there were 30,000 persons who took advantage of the place and on the two inclined plane cars (described in a previous article on Duluth), 15,000 were carried. A cluster of three arc lamps have recently been placed on the tower and these may be seen for a distance of many miles, from steamers approaching the harbor.

As to the matter of attractions the city band was engaged for the season, as the judgment of the management is that the public is better pleased with light attractions than with theatricals which require more formality and closer attention.

The "Zoo" instituted by the company already has an excellent start, and will be added to next year.

THE REVIEW advocates the paying qualities of created travel and is pleased to announce the success of the Duluth road, in its dividends and satisfaction of the public.

SAWING PAVING BLOCKS BY ELECTRICITY—DULUTH.

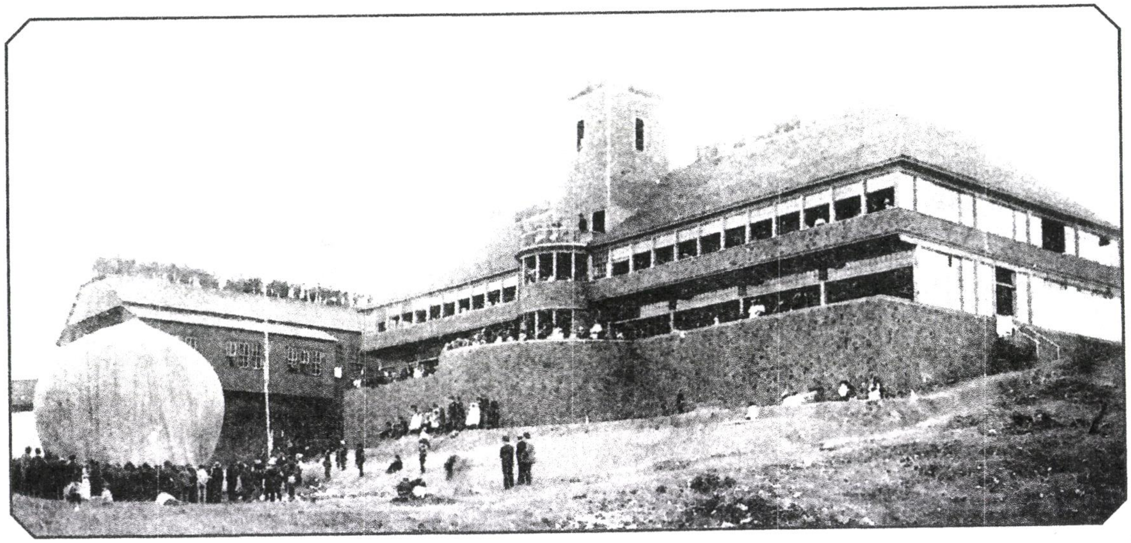
At the top of the hill, the railway took advantage of the incline's growing reputation for its pleasant ride and views. So to increase ridership, in 1892 the company built a grand pavilion adjacent to the powerhouse. Designed by Traphagen & Fitzpatrick, the Beacon Hill Pavilion—at the time considered a "resort"—would make the top of the incline a destination. The large Shingle-style building measured one hundred by three hundred feet and featured a square tower. Over twenty windows across the building's front façade offered views of the harbor. It became more popularly known as simply the Incline Pavilion.

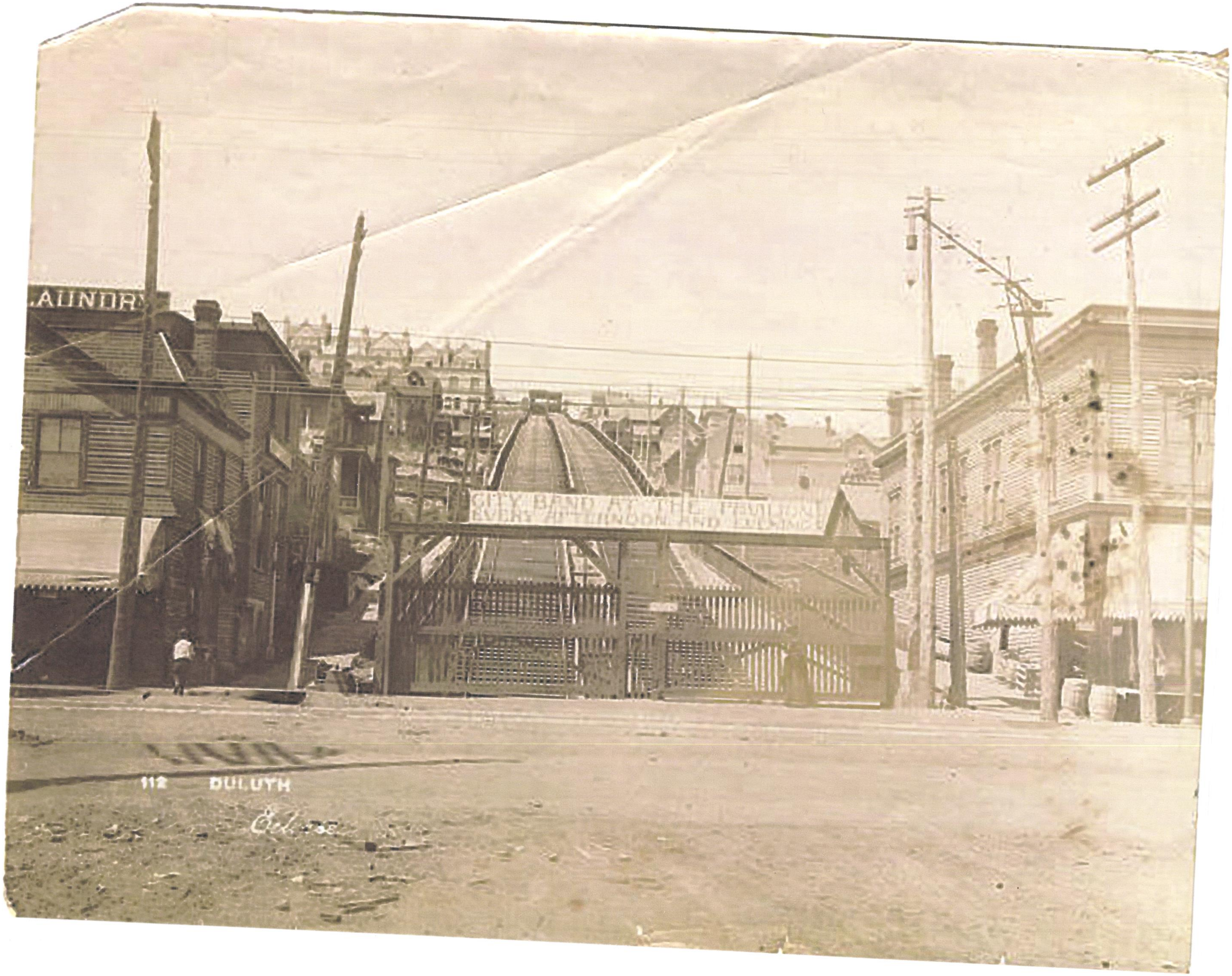
Open from May until late autumn, the Incline Pavilion included restaurants, an amusement center, and the Pavilion Theatre, which was run by Matt Kussell and could seat two thousand spectators. Patrons paid twenty-five cents to see dramatic works as well as vaudeville acts, though as one advertisement assured customers, "the best talent is engaged, and the class of entertainment is suitable for ladies and children as well." Diners could be satisfied at the Palm Garden, a restaurant operated by J. L. Travers, who also ran the pavilion itself. Pavilion guests were entertained by orchestral and military band performances and attended dances at the building. The grounds were used for picnics and hot air balloon flights by Professor Baldwin, a "daring aeronaut" whose acts included ascents and descents in his balloon. Independence Day celebrations of 1892 drew 16,000 people to the pavilion.

The Beacon Hill Pavilion graced Duluth for less than a decade. On May 28, 1901, a fire broke out in the powerhouse and quickly spread to the pavilion. The east car sat just outside the powerhouse while the west waited at the bottom of the hill. The intense heat of the flame literally melted the rail system's cables, releasing the flaming east car, sending it racing toward Superior Street. Luckily the Superior Street station attendants anticipated the situation and did as much they could to get people, horses, and street cars out of the way. The car smashed through the railway's Superior Street depot, crossed Superior Street, and came to a halt in the railyards near the Union Depot. No one was injured. The car was destroyed.

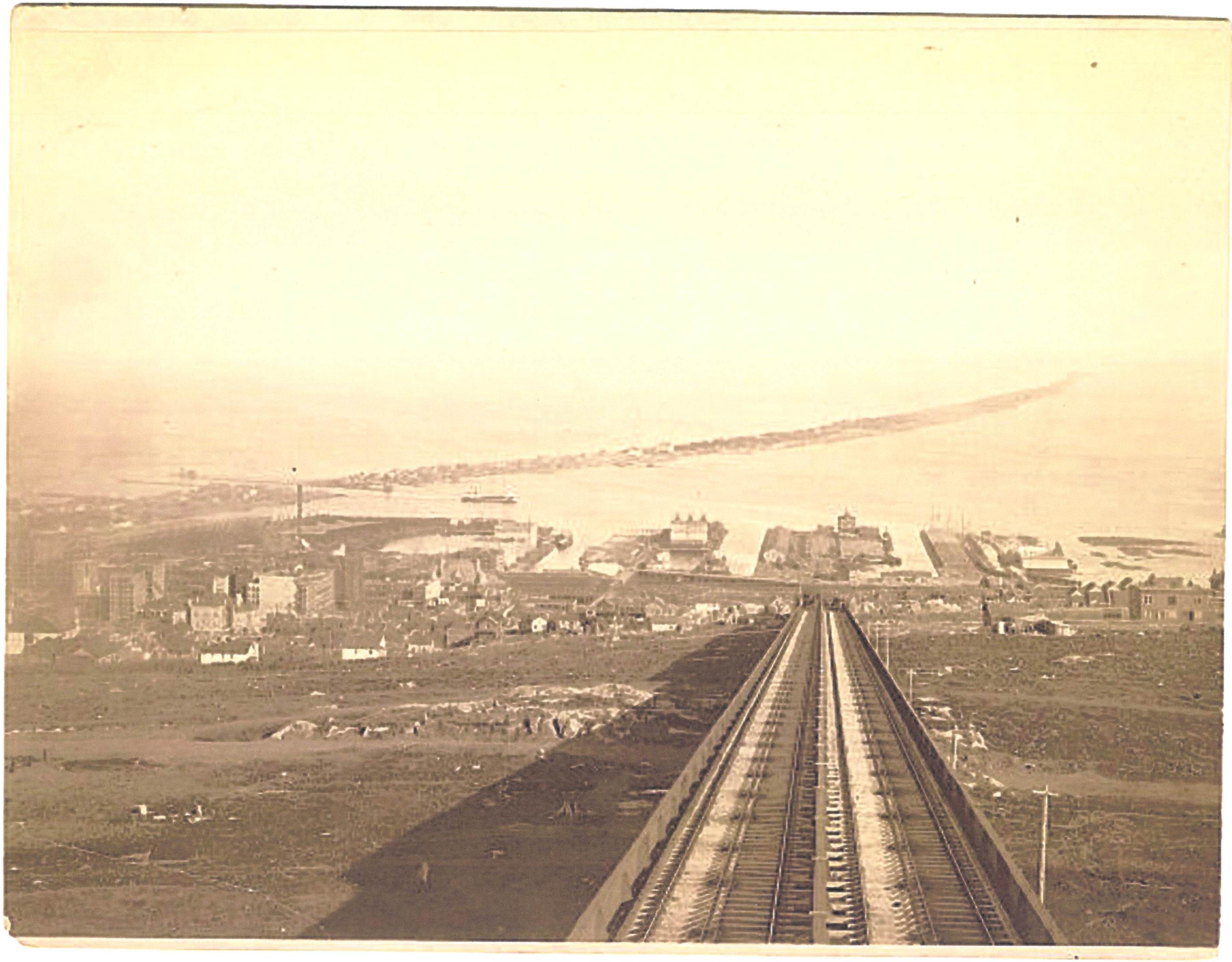
The Beacon Hill Pavilion, heavily damaged in the fire, was never rebuilt. The incline was hastily reconfigured with just the west car operating with a counterweight for balance taking the place of the east car. An electric engine replaced the steam boilers, but the railway did not receive a proper overhaul and new cars until 1911. Meanwhile, four small bridges were built over the east track at street intersections so passengers could get on and off at different points along the railway and had better access o the west car, which only had one door. When the incline finally returned to two-car operation in 1912, with brand-new trollies, the bridges were removed and replaced by small stations containing stairs that led to the street.

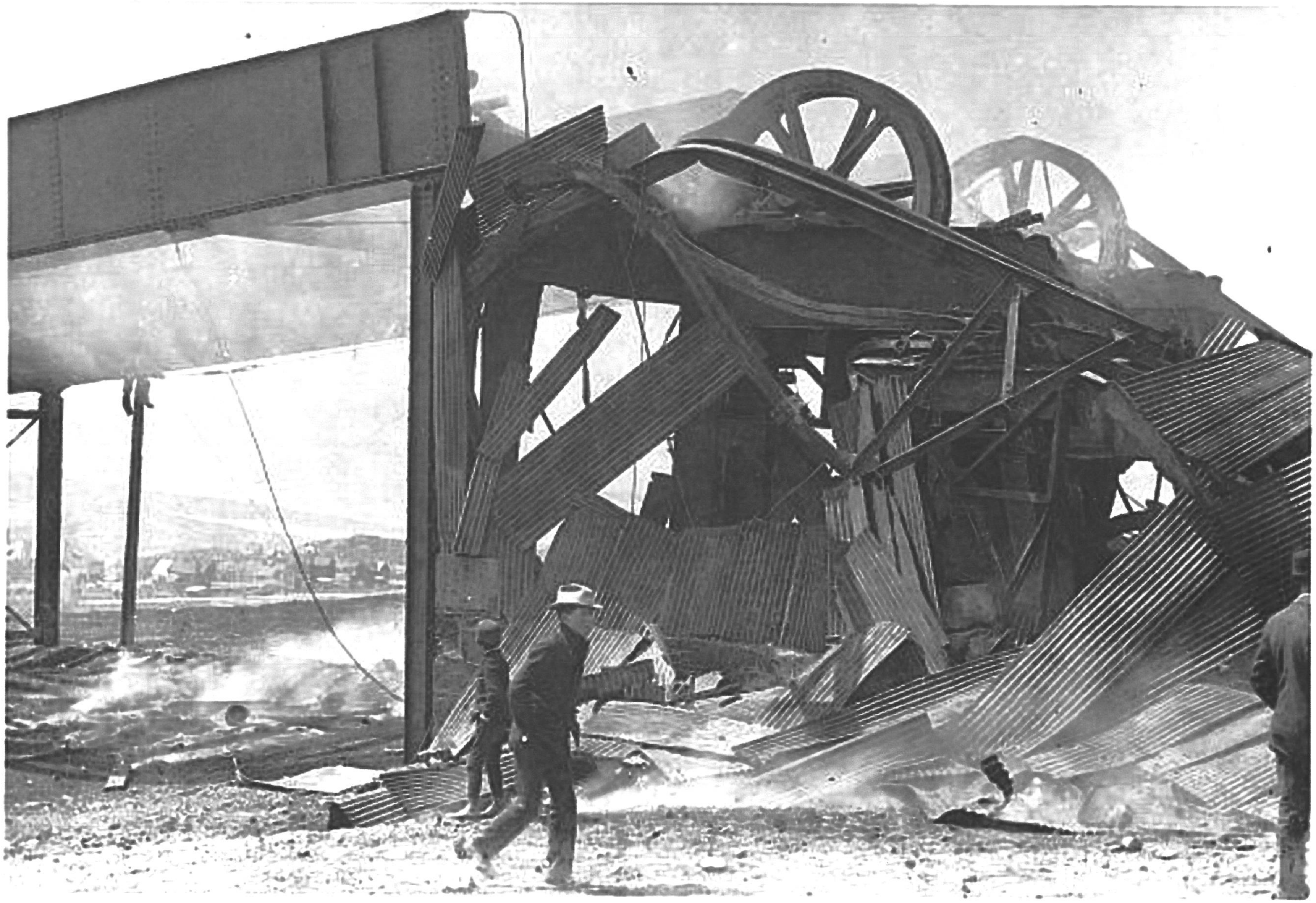
The Seventh Avenue West Incline, the last of Duluth's streetcar system to be dismantled and sold for scrap, served Duluth until Labor Day 1939.



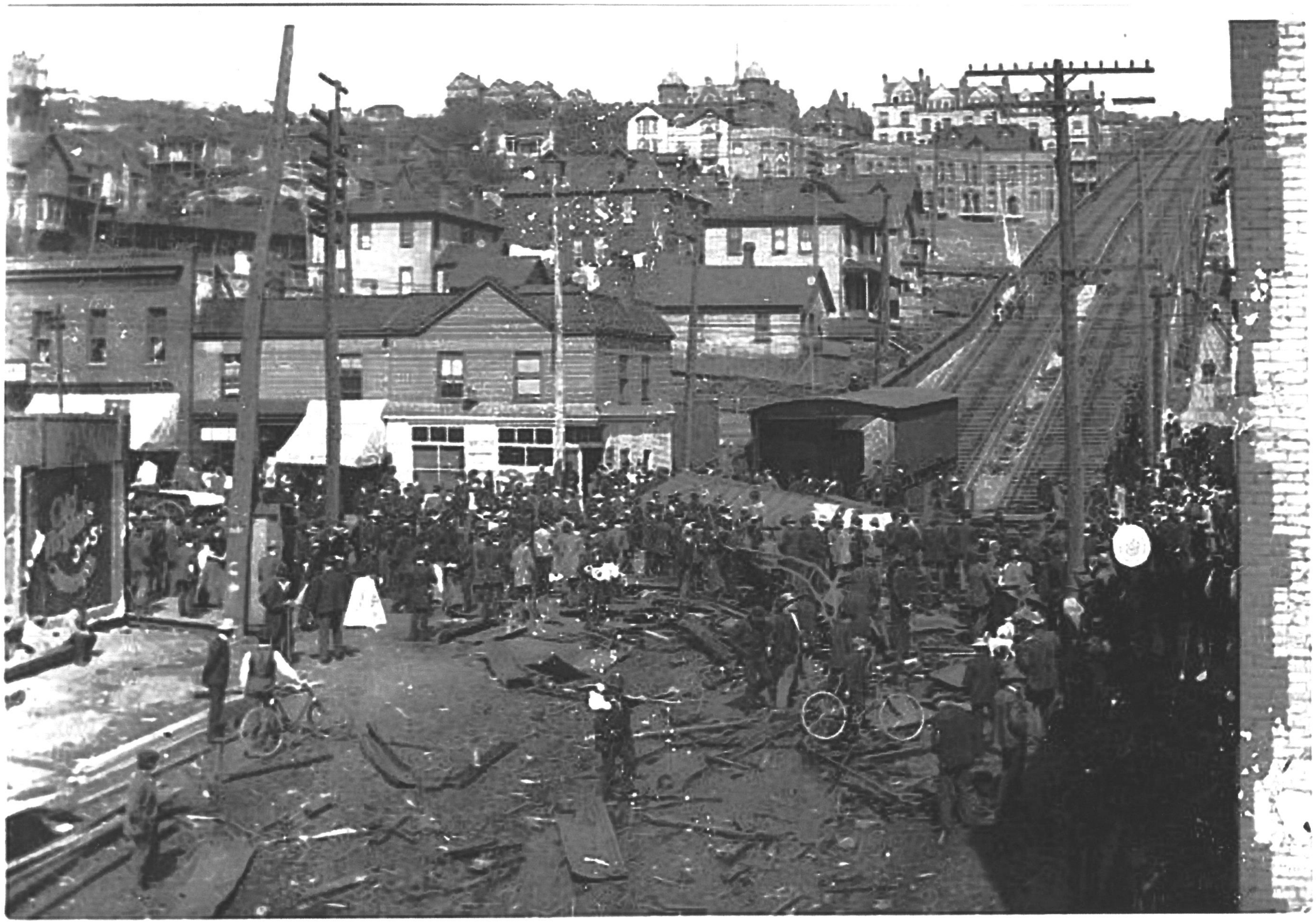

LAUNDRY
CITY BAND AT THE PAVILION
EVERY AFTERNOON AND EVENING
112 DULUTH

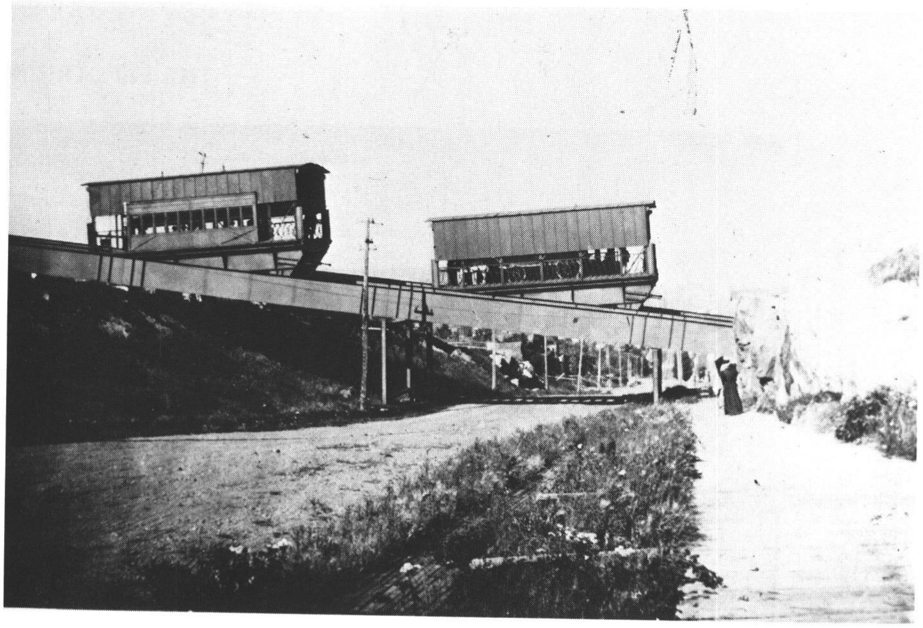
POLY-VU
AVERY™



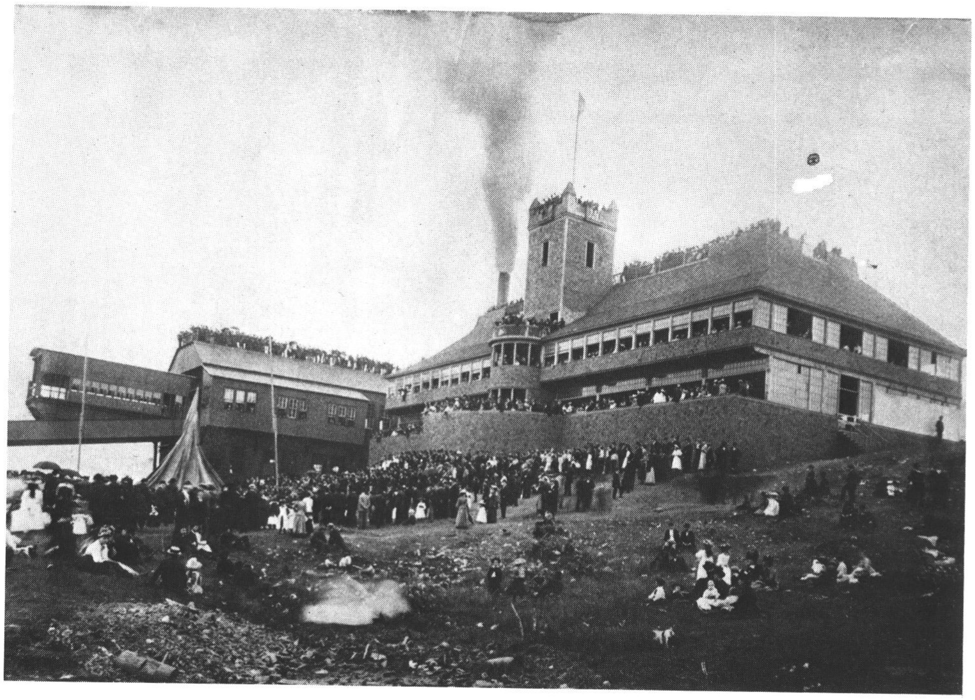


AVERY® c
PV119ED

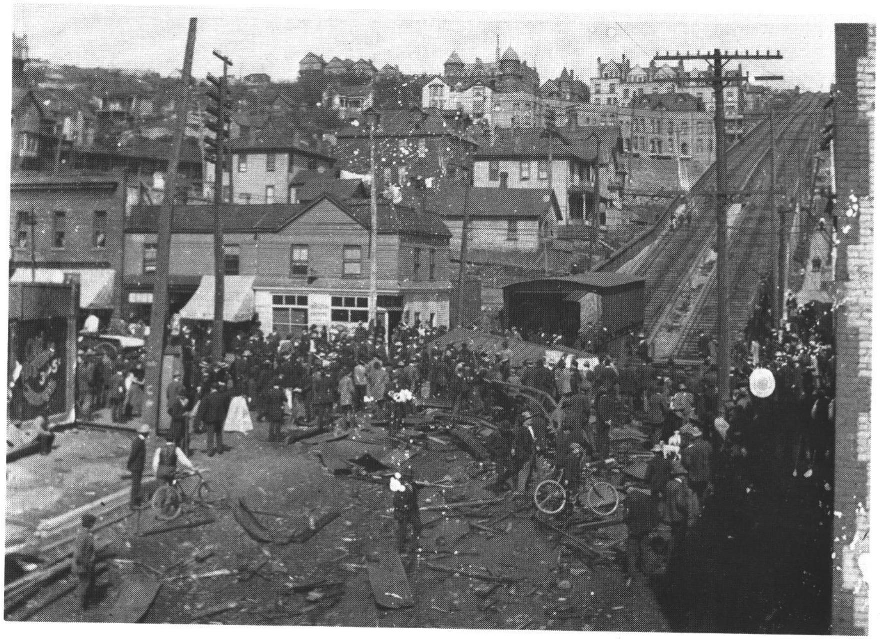




The original incline railway cars that were used from 1891 to 1901.

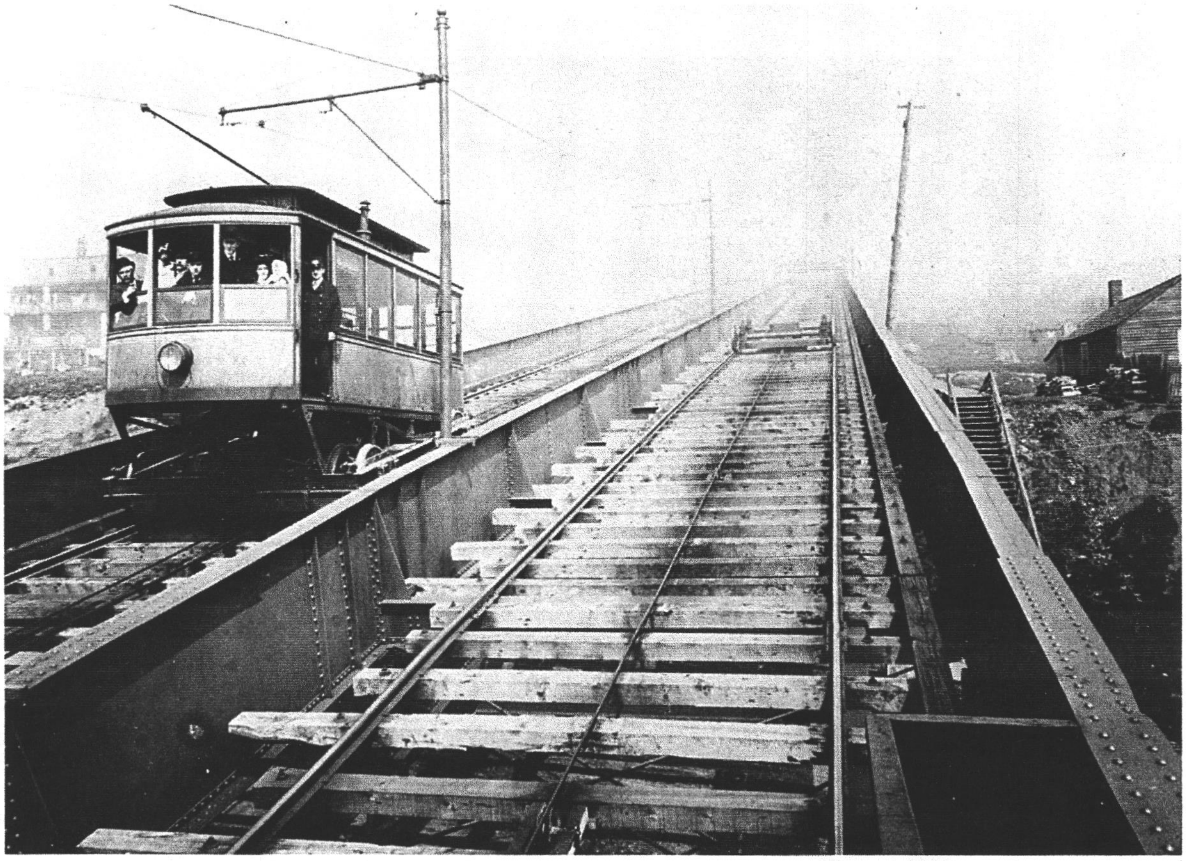


A photograph of the pavilion at the top of the incline railway taken in 1893 at the occasion of a balloon ascension; the deflated balloon can be seen by the incline car at the station.



Wreckage of the incline car and station strewn across Superior St. and 7th Ave. W. after the runaway caused by the powerhouse-pavilion fire on May 28, 1901.

(All photographs Wayne C. Olsen collection)



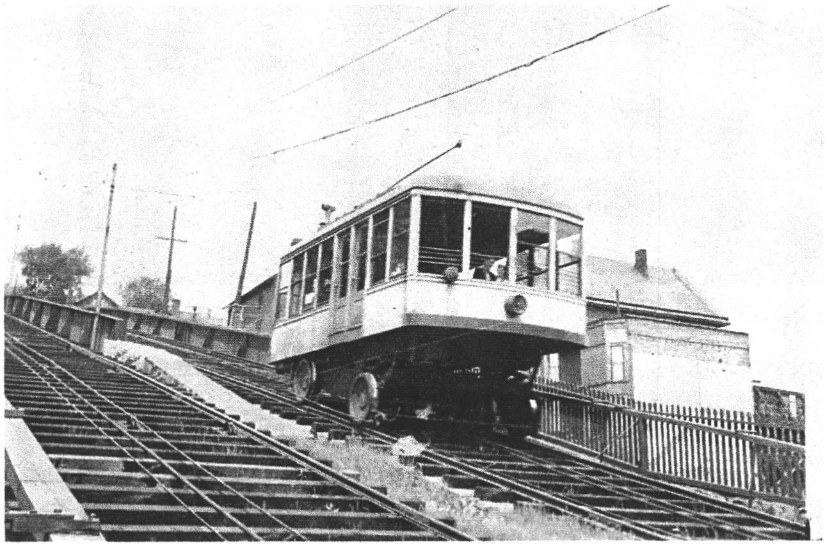
Incline railway car 163 (later re-numbered 63) built for DSR by TCRT in 1901. The counterweight truck can be seen on the east (right) track. (DSR: Wayne C. Olsen collection)

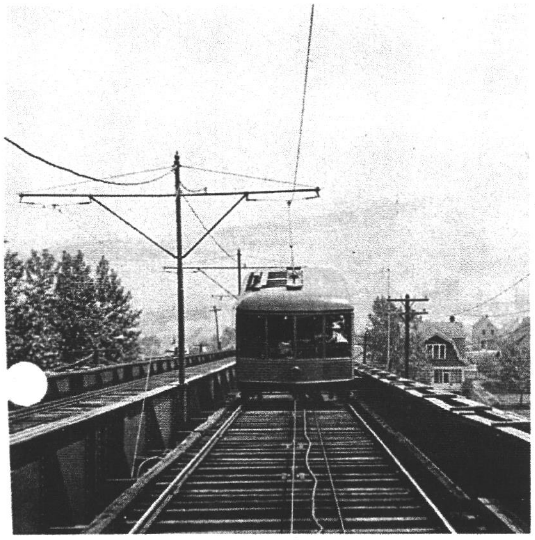
Right: A later view of an incline railway car showing the truck detail. (Byron D. Olsen collection)

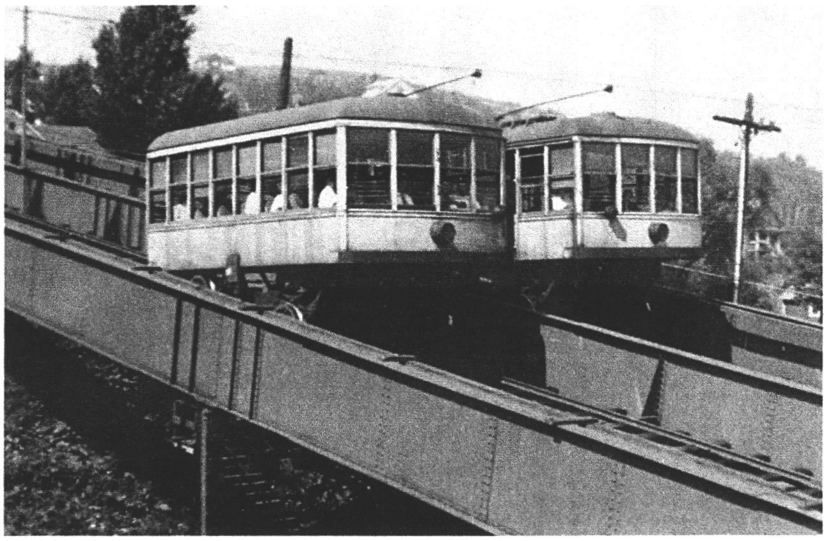
Below left: An early photograph of a car leaving the station at the top of the incline railway. Note the trolley is mounted on the car centerline.

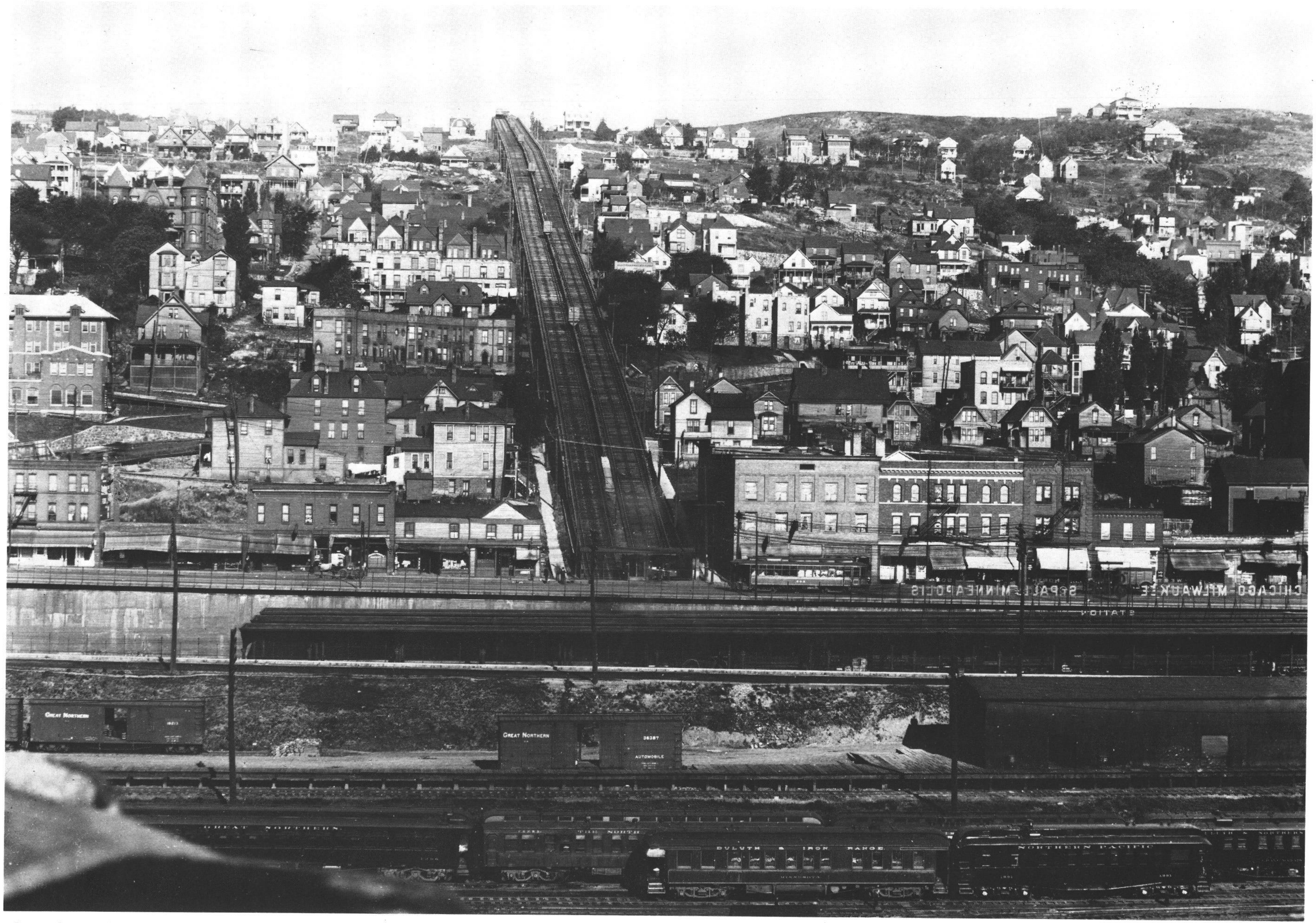
Below right: The two incline railway cars stopping at the intermediate station mid-point on the structure. The trolleys have by this time been moved off-center.

(Both photographs Wayne C. Olsen collection)

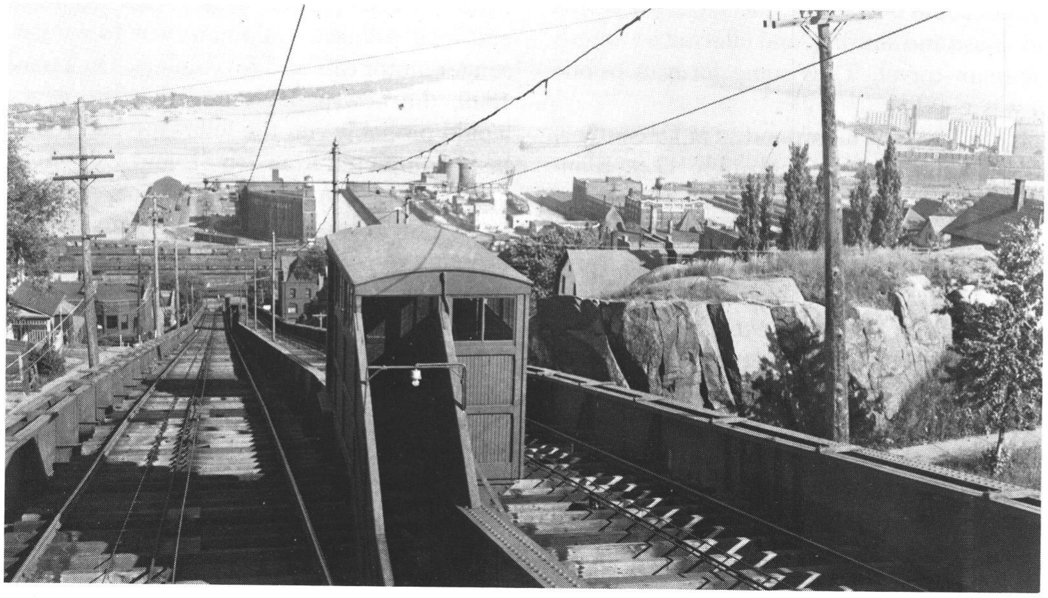






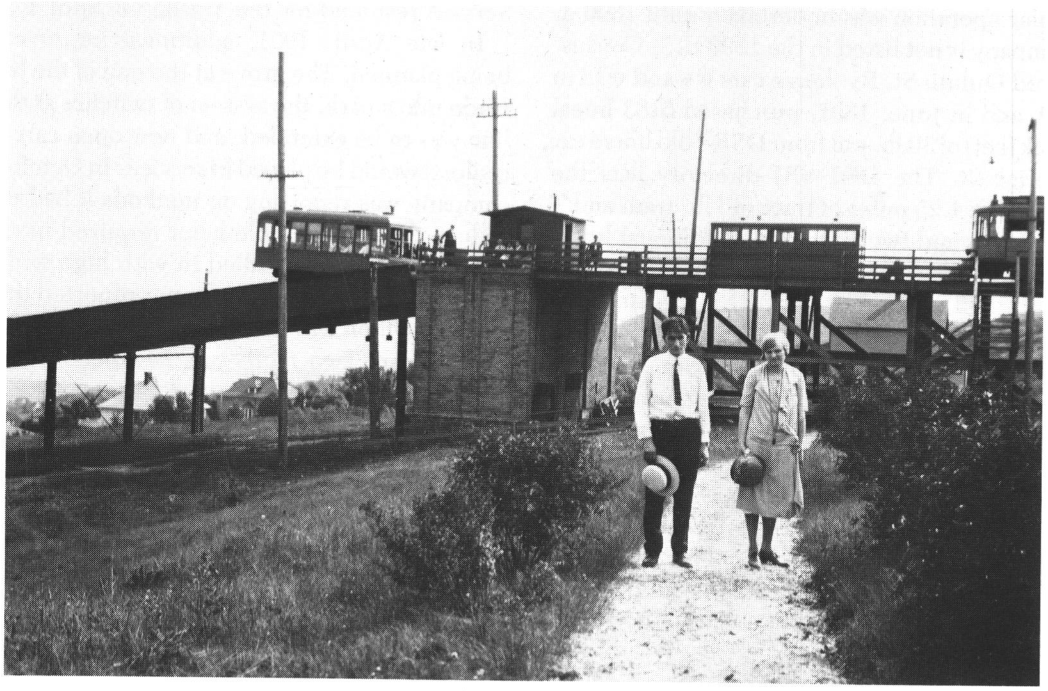

GREAT NORTHERN
GREAT NORTHERN
AUTOMOBILE
GREAT NORTHERN
DULUTH & IRON RANGE
NORTHERN PACIFIC

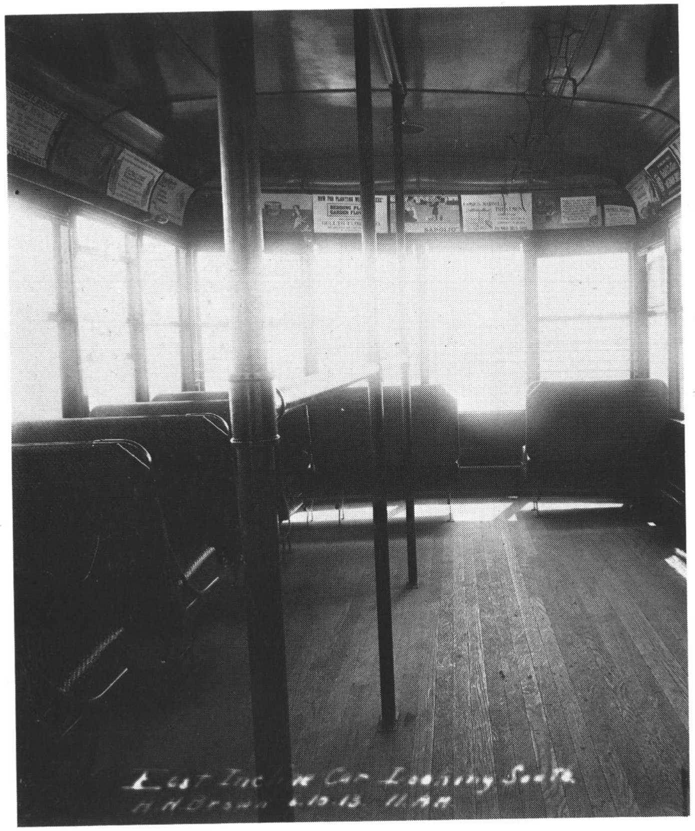
The incline railway after the 1911 rebuilding. This photograph was probably taken about 1912-1913. (DSR; Wayne C. Olsen collection)

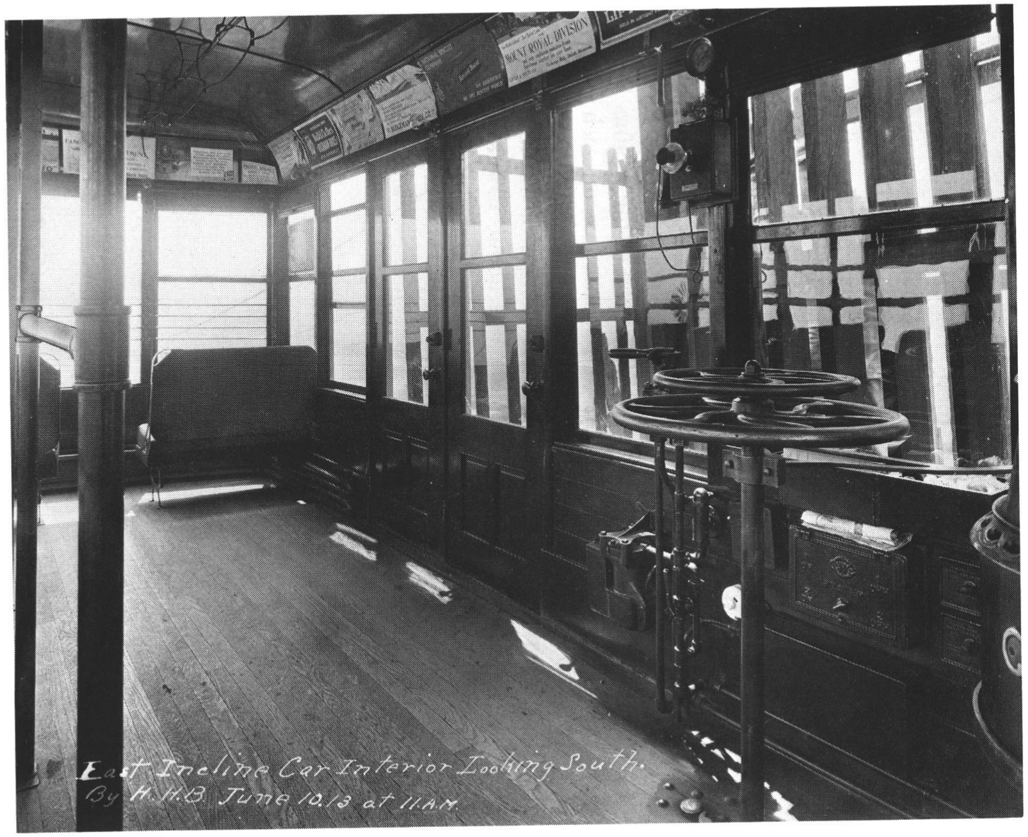


Above: An intermediate station on the incline railway structure in May, 1938. (Herman Rinke)

Below: The station and hoisting engineer's cab at the top of the incline railway. A "Highland Ave." line car can be seen to the right. The trestle and platform occupy the site of the original powerhouse. Taken August 1, 1926. (Joe Hutchinson collection)



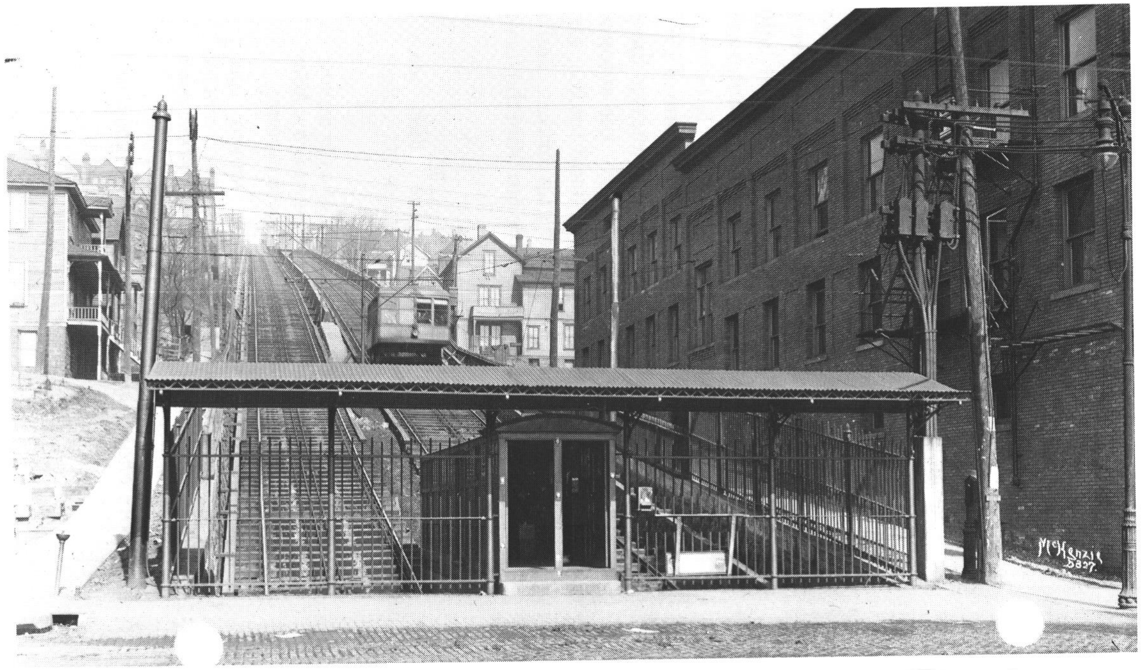

East Incline Car Looking South
H.H.Brown 6.10.13 11.A.M.


East Incline Car Interior Looking South.
By H.H.B June 10/13 at 11.A.M.

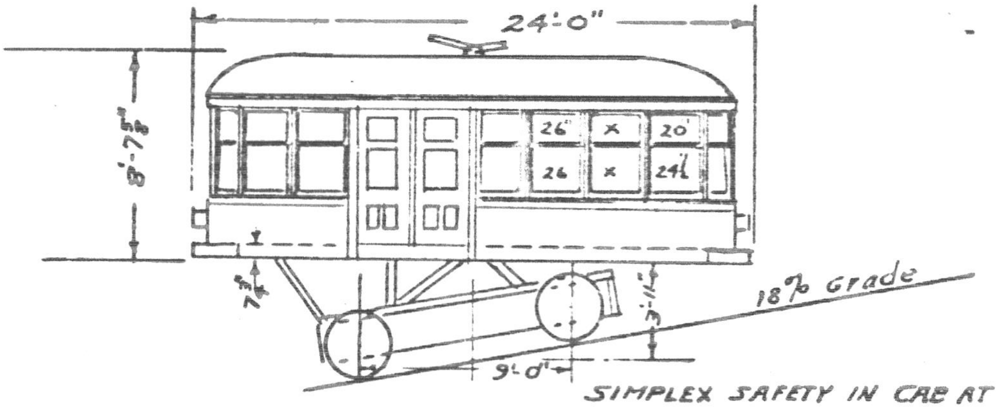
Above left and right: Two views of the interior of the east incline car looking south (downgrade), June 10, 1913. (DSR)

Right: The station at the bottom of the incline railway on Superior St. in April, 1915. (McKenzie Studios)

(All photographs Wayne C. Olsen collection)


McKenzie
5827.

⑩


24'-0"
8'-7⅝"
26" × 20"
26 × 24½
7¾"
3'-1½"
9'-0"
18% Grade

SIMPLEX SAFETY IN CAB AT TOP

CARS	IN SERVICE	TRUCKS	MOTORS	CONT
220	6-1911	T.C.R.T.Co	NONE	NONE
221	"	"	"	"

2 CARS WEIGHT EA. 22000 lbs

MOTORS AT TOP - 2 GE 210
" H.P. = 70 EA.
" GEAR 71T. 3P
" PINION 16T "
CABLE DRUM 48"D.
DRUM GEAR & PINION 81T & 23T 1½P

MFG. T.C.R.T. Co.
UNDERFRAME - STEEL
HEATER - P. SMITH
BRAKE VALVE -
AIR CYL - TWO 7"
" RES. 16" X 48

1" PULLING CABLE 3150' Lg. 1 REQ
1" TAIL " 3470' " " "
1½" GRIP " 3000' " 2 "
⅝ AUTOMATIC BRAKE CABLE 2 " Ea. 3000' Lg.

THE DUL. ST. RY. Co. 1932

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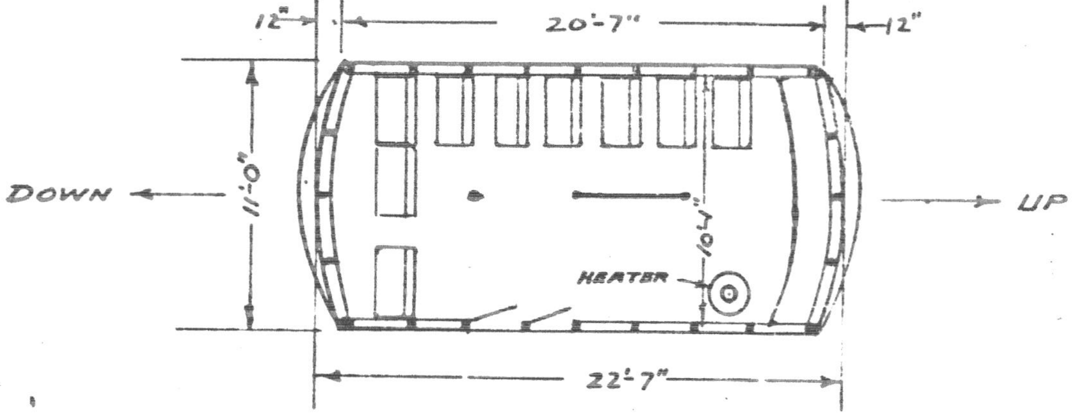
⑩


12"
20'-7"
12"
11'-0"
DOWN
UP
10'-4"
HEATER
22'-7"

FLOOR PLAN SEATS 25 ADULTS
RATTAN SEATS

CARS	
220	
221	

PARK POINT TRACTION CO.
INTERSTATE TRACTION CO.
MINNESOTA POINT ST. RY.

The Duluth harbor is formed by a narrow strip of land extending across the western end of Lake Superior. This sand bar, only 400 to 600 feet wide, extends for seven miles from the Minnesota shore to the Wisconsin shore, and is known as Minnesota Point. About three miles of it, extending from the Duluth shore, is built up with a variety of residences. This settled portion, the village of Park Point, was cut off from the city proper by the harbor entrance, a ship canal which had been cut through in 1871. The village was so narrow that only one street could be laid out, the surface of which was beach sand, loose and shifting, and offering no foundation for horse-team travel. Thus some form of public transportation was needed.

MINNESOTA POINT ST. RY.

The Park Point St. Ry. was incorporated in December 1886 by E. R. Jefferson, T. C. Hinebaugh, D. S. Blanchard, W. E. Richardson, and E. G. Johnson (Hudson, Wisc.); no actual construction was undertaken.

The Minnesota Point St. Ry. was incorporated in April 1887 by John J. Hibbard (president), Rufus J. Edson (vice president), Wallace Warner (secretary), Reginald W. Petre, Alexander MacDougall, Bernard Silberstein, Roswell H. Palmer, and W. C. Howenstein. A franchise from the village was obtained in July 1887 but it wasn't until December 1888 that the company succeeded in completing 1.25 miles of 3'6" gauge horsecar track. The company, already plagued with the problem of drifting sand, requested help from the village in solving the problem so operations could begin. However the village was unhappy with the company as it felt the terms of the franchise had not been complied with and ordered operations to begin on or before January 7, 1889. Petitions from the company and citizens groups requested extension of the deadline until May 15, 1889, because of the winter weather; this was granted by the village council.

Apparently no regular operation was undertaken until 1890 or 1891. The company is not listed in the 1890 U. S. Census. MPSR acquired Duluth St. Ry. horsecars #4 and #14 in August 1890. In June 1891 MPSR purchased 6,183 l.f. (3,092 track feet) of 30 lb. rail from DSR's old horsecar line on Superior St. An 1891 Street Railway Journal directory lists the company as owning 4.25 miles of track (45 lb. tram and T rail), five horsecars and twelve horses. Additional horsecars were acquired from DSR in December 1891 (#1) and May 1892 (#5, #7, #10, #13). Subsequent directories indicated (1) 1892: 3.75 miles of track; and (2) 1893: 3.50 miles of track and eight horsecars. The horsecars were operated during the spring, summer and fall months only; no winter operations were attempted.

In May 1896 control of the company passed from local people to eastern interests through the sale of a portion of the capital stock. However financial difficulties created by the cost of removing drifting sand in the summer, no winter operation because of deep snow, and low traffic potential resulted in the sale of the company at public auction held March 19, 1898, at the company's carhouse. The successful bidder was Robert Dunn, a St.Paul broker, who bid $7,000.

INTERSTATE TRACTION CO.

A new company was formed with the impressive name Interstate Traction Company. A. W. Hartman was the general manager. Operations began for the season April 23, 1898. In November 1898 plans for improvements were announced, including electrification of the line. In early May 1899 it was reported that the line was being electrified to 4'8½" gauge, 35 lb. rail, with several long sidings. Equipment was to consist of four passenger motor cars and two passenger trailers.

On Tuesday, June 20, 1899, the newspaper reported that the line had been completed from 7th St. and Lake Ave. (at the ship canal) on Lake Ave. and Minnesota Ave. to Oatka Beach at 39th St.; the new electric cars would probably run the following Saturday. It was also reported that a third rail had been installed to permit use of the old 3'6" gauge horsecars if necessary. (The accompanying photograph shows this third rail. An old photographic postcard also shows that during electrification the 3'6" gauge horsecar track was side by side with the 4'8½" gauge electric track which permitted un-interrupted horsecar operation while the electrification was undertaken.) Electricity was purchased from the Commercial Light & Power Company's Duluth power station.

It was reported that four new single-truck, closed passenger motor cars, numbered 1-4, were received from LaClede Car Company, St.Louis, Missouri, in May 1899. However research indicates these four cars were purchased used from the Duluth St. Ry. Refer to the section on DSR Equipment for a detailed explanation and photographs.

In January 1900 it was announced that a depot was to be built at the end of the line and arrangements were being made for the construction of a hotel and pavilion at 39th St. On March 21,1900, it was reported that two long sidings had been installed, the pavilion at Oatka Beach was scheduled for completion May 1st, and that two open passenger trailers had been acquired from DSR. Service resumed for the season on April 1, 1900.

In late April 1901 additional improvements were being planned. The grove at the end of the line was to be made into a park, the system of switches at the end of the line was to be extended, and new open cars (motors and trailers) would be placed in service. In October 1901 the company was reporting on methods it had developed to reduce the considerable labor required in clearing sand from two cuts which filled in with high winds.

The May 28, 1902, newspaper reported that Oatka Beach pavilion was to be formally re-opened with ITC its new owner. Two more cars had been purchased from DSR, one open passenger motor car and one open passenger trailer. This gave ITC a total of eight cars: four single-truck, closed passenger motor cars (#1-4), one single-truck, open passenger motor car (#5)(ex DSR 92 purchased 1902), and three single-truck, open passenger trailers (ex DSR 91,93,94; two purchased in 1900 and one in 1902).

An example of the type of patronage enjoyed by ITC occurred on the evening of June 25, 1902, when 350 persons were carried to a dance party at the Oatka Beach pavilion in addition to a large number of campers and about 150 persons from West Superior. The activities at Oatka Beach consisted of the pavilion (dance hall), beach, boating facilities (Oatka branch of the Duluth Boat Club), and camping. A public roadway did not exist south of 12th St. so ITC enjoyed the distinction of being the sole mode of transportation.

In August, 1902, ITC purchased a tract of land for $32,000 and announced it would install water and sewer lines and make the property available for summer homes.

The 1902 U.S. Census reported the following information.
1. First main track 3.03 miles, sidings 0.11 miles, total track 3.14 miles. All laid with 30 lb. T rail.
2. Four closed cars and four open cars of which five were motor cars and three were trailers.

The first all-year operation may have started during the winter of 1903-1904. In 1899 the City of Duluth had begun ferry service across the ship canal to Park Point. In December 1903 it was reported that one of the old Park Point streetcars (an old horsecar?) had been bolted to the deck of the tugboat ANNIE L. SMITH for use as a passenger cabin while the tugboat acted as the ferry between Duluth and Park Point. In March 1904 ice and snow crippled operations to the extent that dynamite had to be used to re-open the line.

In May 1904 extension of the line from 39th St. to 43rd St., begun in 1903, was nearly complete.

During 1904 the City of Duluth began construction ~~on~~ of the Aerial Bridge, connecting Duluth and Park Point across the ship canal at Lake Avenue. The bridge design was patterned after an existing structure in Rouen, France. The main structure was 34 ft. wide by 393 ft. long with a clear height above the water of 135 ft. A ferry car 34 ft. wide by 50 ft. long was suspended from the top of the main structure by steel girders, the entire assemblage running on rails fastened to the top of the main structure. The ferry car was electrically operated and capable of a speed of 4 m.p.h. with a capacity of 125,000 lbs. The completed bridge cost approximately $100,000 and was opened for traffic February 23, 1905.

While there was no streetcar track on the Aerial Bridge ferry car, it was now the only all-weather connection with Duluth. Anticipating increased passenger traffic because of the bridge ITC ordered two double-truck closed passenger motor cars from St.Louis Car Company in October 1904. The two cars arrived in Duluth on June 12, 1905.

Named OATKA and AERIAL, they were subsequently assigned numbers 10 and 11. They measured 40'5" long overall; 29'4" body with 5'6½" vestibuled platforms; and 8'4" wide. Weight 40,600 lbs. St.Louis Car Co. trucks of 4'6" wheelbase, two G.E. 67 motors, two K-10 controllers. The exterior was wine colored, while the interior finish was of oak with birds-eye maple ceiling and bronze fittings. OATKA toured the Duluth street railway system for exhibition purposes June 13th. On June 14th both cars were run across the Aerial Bridge using a temporary track and trolley wire installed by DSR on the ferry car and the bridge approaches.

In April 1905 the company announced that work was to begin on double-tracking the line. This work had been considered as early as 1902. It was reported in October 1906 that plans had been completed for double-tracking the entire line: it was intended in the spring to build a second track from the ship canal to where the present double track ended. However the 1907 U.S. Census figures indicate the entire line was still single track at that time. The line was eventually double-tracked but just when this work was accomplished is uncertain.

On March 31, 1906, plans for construction of an amusement park, "White City", by the Duluth Amusement Company, were nearly complete. This was located at the end of the line at 43rd St. Projected completion date of the facility was June 15, 1906. To handle the amusement park traffic ITC acquired:

1. three Superior Rapid Transit Ry. single-truck, closed passenger motor cars (110,117,122) along with three K-2 controllers; and
2. six single-truck, open passenger trailers from the St.Paul City Railway. These were ex cablecar trailers (railroad roof) 221,226,229,239-241.

DSR repaired and repainted the cars Indian red with aluminum leaf lettering. All nine cars were ferried across the Aerial Bridge in June.

ITC's two-track carhouse was located on the west side of Pine St. (19th St.) and Minnesota Avenue. With the acquisition of the additional cars a larger building and more trackage was needed. Construction started in May 1906 on a new carhouse building on the east side of the same intersection. The existing building was to be retained for car storage purposes.

ITC began making a car available for funeral service in May 1907. An even more unusual purpose was found for a streetcar that same year. Fire-fighting on the Point had proved a difficult problem for years. Even with the Aerial Bridge it took too long to cross the ship canal to respond in time to a fire alarm. The surface of what streets there were was of loose and shifting beach sand preventing vehicle travel. Water along the shore was too shallow to permit use of a fireboat. Bucket brigades did what they could, which wasn't much. So a fire-fighting streetcar was developed.

In May 1907 ITC sold single-truck open passenger motor car #5 (ex DSR 92) to the City of Duluth. The seats were removed but the bracing was retained. A hose box was installed the entire width of the car; open at both ends, no matter which way the car was going the hose line could be carried from the hydrant to the fire. The equipment consisted of the following.

Water pump operated by an electric motor.
1,500 ft. of 2½" hose.
Two shut-off nozzles.
20 ft., 26 ft. and 30 ft. ladders.
14 ft. roof ladder.
Six axes.
Four pike poles.
Two six-gallon Babcock extinguishers with extra charges.
Rubber coats, boots and hats for the volunteer firemen.

Under the agreement with ITC effective July 2, 1907, the city agreed to pay ITC $30 per month for which ITC would store the car in the old carhouse, maintain and repair the car, and furnish the motorman when a fire alarm was turned in.

W. W. Forsyth, a pipeman for the Duluth Fire Department, who lived close by the carhouse, was appointed chief of the volunteer fire department on 24 hour duty. Fire alarms were turned in to his home by telephone. He would rush to the carhouse, get the motorman (usually the shop foreman), and with headlight on, automatic gong clanging, start down the track immediately. Volunteers were picked up along the way, alerted by the clanging of the gong on the car. Motormen of regular cars who met the fire car on the way to a fire were instructed to reverse direction quickly and proceed ahead of the fire car to the scene of the fire, assist at that point if necessary, or operate shuttle service during the time of interruption. When the alarm arrived at Duluth it was relayed to the nearest regularly organized company whose members responded without equipment; usually the volunteers would have checked the fire before they arrived.

Another service provided by ITC was the transportation of coal, wood, furniture, groceries, supplies, etc., for the residents of the Point. Due to the lack of improved streets this was the most convenient method of having such commodities delivered. Two freight trailers were operated in this service. Loaded at the Aerial Bridge the trailers were pulled by passenger motor cars and either left at the sidings or spotted on the track in front of homes. Residents unloaded their merchandise as quickly as possible to that the returning passenger car could return the freight trailer to the carhouse.

The 1907 U.S. Census figures were as follows.

1. First main track 3.05 miles, sidings 0.11 miles, total track 3.16 miles laid with 35 to 60 lb. T rail.
2. 18 passenger cars, 2 freight trailers and 1 snow plow for a total of 21 cars. Ten were motor cars (nine had two motors each) and 11 were trailers.

Power purchased for two D.C. Dynamos, 250KW total.

On May 1, 1908, new transfer arrangements with DSR became effective. The rate of fare on either company's line was 5 cents plus 2 cents for a transfer.

On May 6, 1908, the Duluth Amusement Company which had operated "White City" amusement park during 1906 and 1907 went into receivership. The company had debts in the amount of $19,000 from the 1907 season which could not be paid unless the property was sold. ITC obtained control May 27th and announced the fence enclosing the grounds would be removed and the place converted into a park. Amusement features would be retained but on a greatly reduced scale. ITC re-named the park "Joyland". However ITC was no more successful at making the operation profitable and it was announced in April 1909 that the buildings were to be torn down and the lumber sold. Thus the dance hall at Oatka Beach would be the only pleasure place left and efforts were to be made to make it as popular as it had been before.

During 1910 the original carhouse building, which housed two tracks, was rebuilt ~~to~~ so as to enclose only one track; the second track was then used for outside storage.

The financial report for the year 1910 indicated that ITC carried 416,000 passengers; total income was $23,183 and total expenses $21,947 for a net profit of $1,237.

Electric power was purchased from the Duluth Edison Electric Co. at 4,000 volts, 3-phase, 60 cycle, alternating current which operated a 300 h.p. electric motor. This motor was directly connected to a General Electric 348 ampere, 550 volts direct current generator located in ITC's substation. The alternating current transmission line was carried over the top of the Aerial Bridge.

Passenger traffic continued to increase due to the popularity of the Point for summer homes and the many visitors to the Duluth Boat Club's Oatka facilities. ITC announced in March 1911 that two new double-truck, closed passenger motor cars had been ordered from Danville Car Company, Danville, Illinois. Numbered 20 and 21 they measured 41'1" long overall (28'11" long body with 6'1" long vestibuled platforms) and 8'4" wide, weighed 36,600 lbs., and were equipped with Brill 27-G1 trucks (4'6" wheelbase), two G.E. 67 motors, and two K-10 controllers. The two cars arrived at the DSR shops on June 8, 1911, and were ferried across the Aerial Bridge a few days later.

order # 562
1-30-1911

Stockholders of ITC were Robert R. Dunn (St.Paul); A. W. Hartman (treasurer and general manager), O. C. Hartman, C. F. Hartman, F. W. Sullivan (all of Duluth); and H. O. Underwood (Boston). First mortgage bonds of the company were held chiefly by eastern capitalists and it was reported in February 1913 that ITC would probably be taken over by its bondholders as it had been unable to meet interest payments on the bonds.

PARK POINT TRACTION CO.

During March 1913 the company was re-organized as the Park Point Traction Company. Officers were Robert R. Dunn (president), J. R. Crane (treasurer and general manager), and Oscar Mitchell (vice president and secretary). The 300 shares of capital stock were held principally by R. R. Dunn, A. W. Hartman, and the Park Point Land Company. The value of the property at December 31, 1913, was $139,013 financed by $10,620 in first mortgage bonds and $99,681 in income bonds.

The financial results for the year 1913 were not encouraging. Income totaled $23,272 (passenger 91%, freight 8%, other 1%) while expenses totaled $23,441 (wages 41%, salaries 11%, power 15%, repairs and maintenance 26%, other 7%) for a net loss of $169.

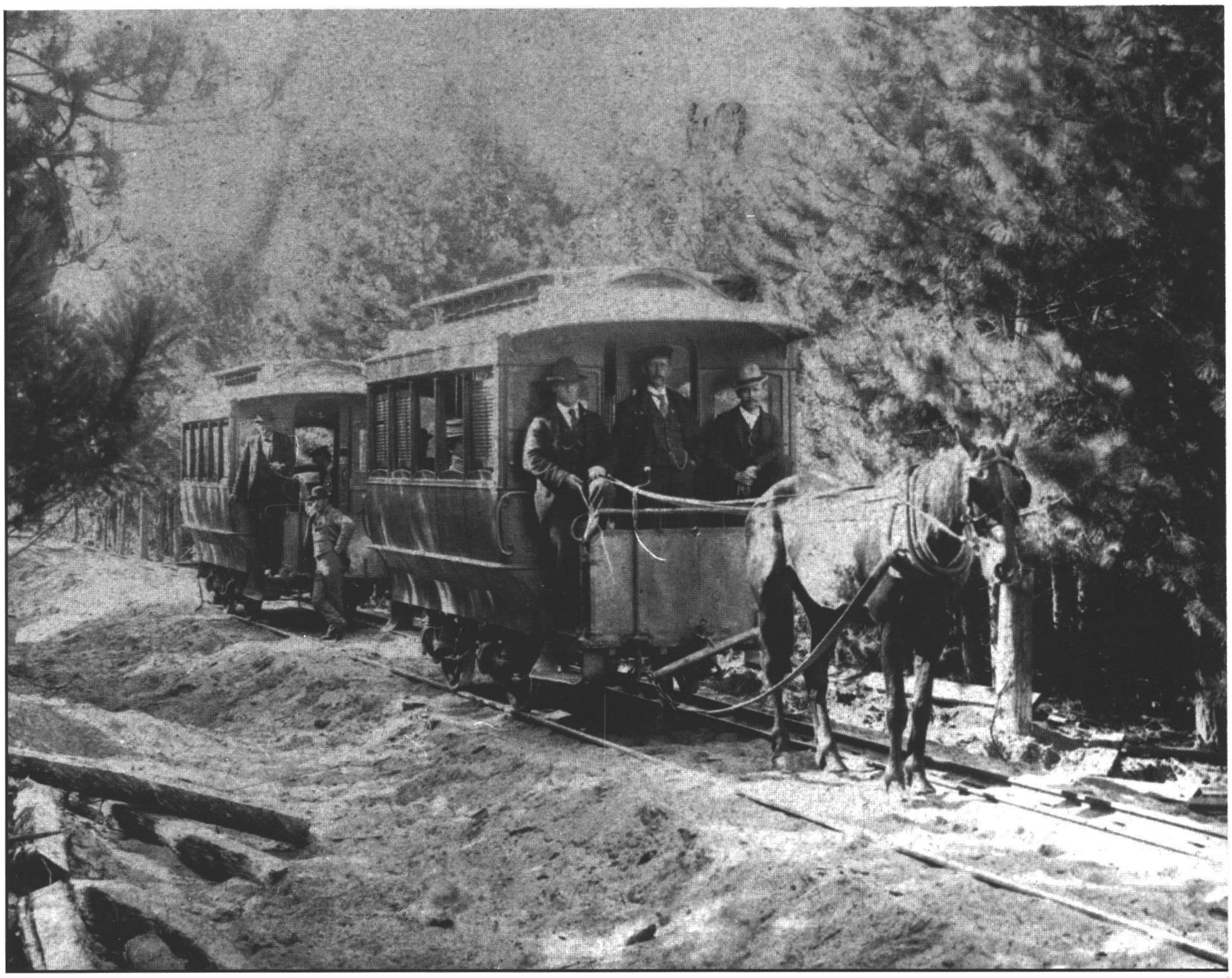
As of April 15, 1914, the company owned 6.5 miles of track, seven passenger motor cars, seven other cars, and one snow plow. Daily service was operated in the summertime from 6:00 a.m. to 12:10 a.m. at 20 minute intervals. Winter service was operated at 40 minute intervals.

The financial results for the year 1914 showed that 426,613 passengers were carried, income totaled $24,271 (passenger 87%, freight 9%, fire car 1½%, other 2%) while expenses totaled $26,620 for a net loss of $2,349.

The village of Park Point began a street paving program in 1914. Lake Ave. from the Aerial Bridge to 13th St. was completed that year forcing PPTC to reduce double track to single track on that portion of the line because of paving costs. During 1915 the village proposed paving Minnesota Ave. from 12th St. to 38th St. causing PPTC to decide to convert the remainder of the line to single track with passing sidings. In June 1915 a 600 l.f. passing track was installed on Minnesota Ave. before paving began. The newly-paved street was opened for automobile traffic September 27, 1915, providing a paved road from the Aerial Bridge to within a block of the Duluth Boat Club's Oatka branch facilities. Thus the only track on unimproved streets now consisted of that on Lake Ave. from 13th St. to 14th St., on 14th St. from Lake Ave. to Minnesota Avenue. Side-of-the-road track, with sidings at 14th St. and 37th St., extended from 14th St. to 38th St. on Minnesota Avenue. The total track mileage as of September 28, 1916, was reported at 3.6 miles.

On July 20, 1916, it was announced that 10 minute service would be provided beginning the following Sunday as the sidings previously built were located specifically for that purpose. Previously two cars had been run together during rush periods. Block signals were also installed.

Financial reports indicated that PPTC sustained net losses of $932 and $49 respectively for 1915 and 1916. An unusually heavy snow in early March 1917 closed the line for nearly a week. The expense of opening the line combined with the loss of revenue, added to the company's financial woes. On July 1, 1917, Duluth St. Ry. assumed operation of PPTC and on September 1, 1917, formally acquired the property. A total of 3.8 miles of track was reported at the time of acquisition. ↓ For $145,475



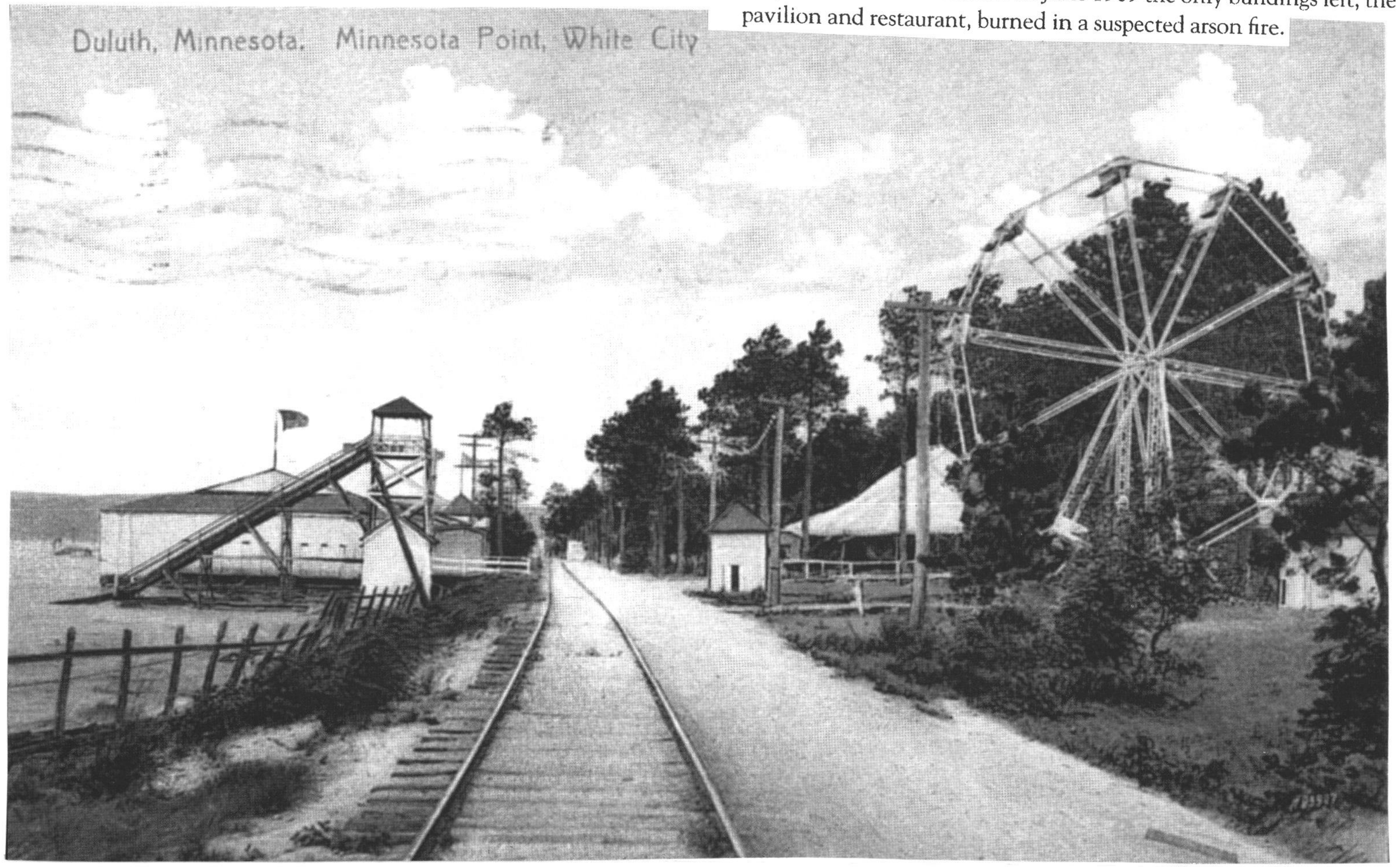
White City

As early as 1900 a pavilion stood at Minnesota Avenue between Thirty-Ninth and Fortieth Streets, marking Oatka Park. ("Oatka" is Ojibwe for "an opening.") Still the park didn't see many visitors until 1905, when the Duluth Aerial Transfer Bridge began operating, allowing many more people access to Minnesota Point (prior to the bridge, the only way across the canal was in a ferry boat). Reports claim ten to fifteen thousand people enjoyed the park on the bridge's first day, even though it had little to offer at the time. Soon after the bridge opened the park became White City, an amusement park operated by the Duluth Amusement Company. On more than one Sunday in 1906, crowds using the aerial bridge to reach White City surpassed the record of 32,595 set the very first Sunday the bridge opened to the public.

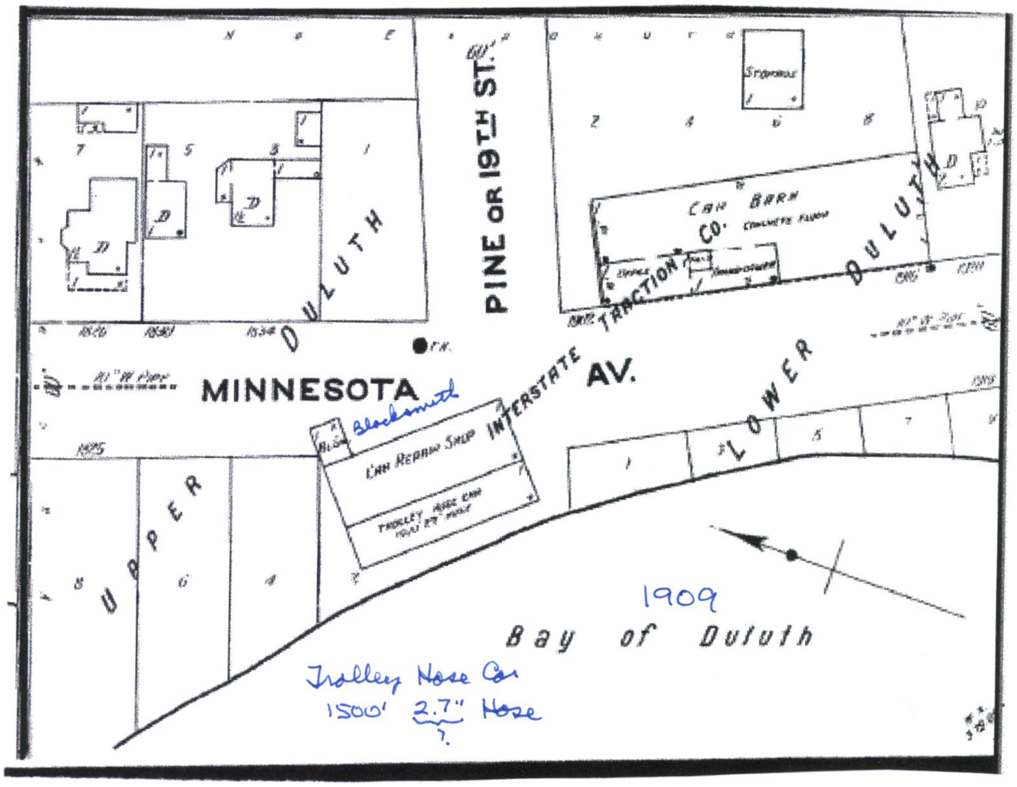
White City, first envisioned by members of Duluth's Commercial Club, was patterned after amusement parks in large cities, especially the 1893 Columbian Exposition in Chicago, whose facilities were called White City because each of the wooden structures was covered in a white paint-like material. Designed by St. Paul contractor Thomas H. Ivey, White City opened in the summer of 1906 with a circus, dancing pavilion, restaurant, merry-go-round, Ferris wheel, and water slide. Adults paid ten cents and each child was charged a nickel. Plans for the future involved more attractions, including a roller coaster and a $7,500 gasoline-propelled airship to be named *Duluth No. 1* (neither was built).

Some rides were added, including the "Mystic River" boat ride, a miniature railroad (operators claimed it had the smallest steam locomotive in the United States), the Old Mill, and the "Fun Factory," where ticket payers lost themselves wandering on twisted paths and "[ran] up against all kinds of funny and startling adventures." Other attractions included a corral of deer, a Gypsy Village (right), an automated baseball game, and free acrobats and burlesque performers, including "Rollo-Boy," pictured above. Facilities included sitting rooms (for the ladies), cafés and restaurants, and bathhouses. White City even offered swimming lessons in Lake Superior's chilled waters.

By 1908 financial problems forced the Duluth Amusement Company to sell, and the new owners changed White City to Joyland. But the new name helped little, and in April 1909 the park closed and most of its buildings were torn down. Oatka Park returned to picnic grounds with band concerts as its only form of entertainment. In June 1909 the only buildings left, the dancing pavilion and restaurant, burned in a suspected arson fire.



POLY-VU
AVERY™

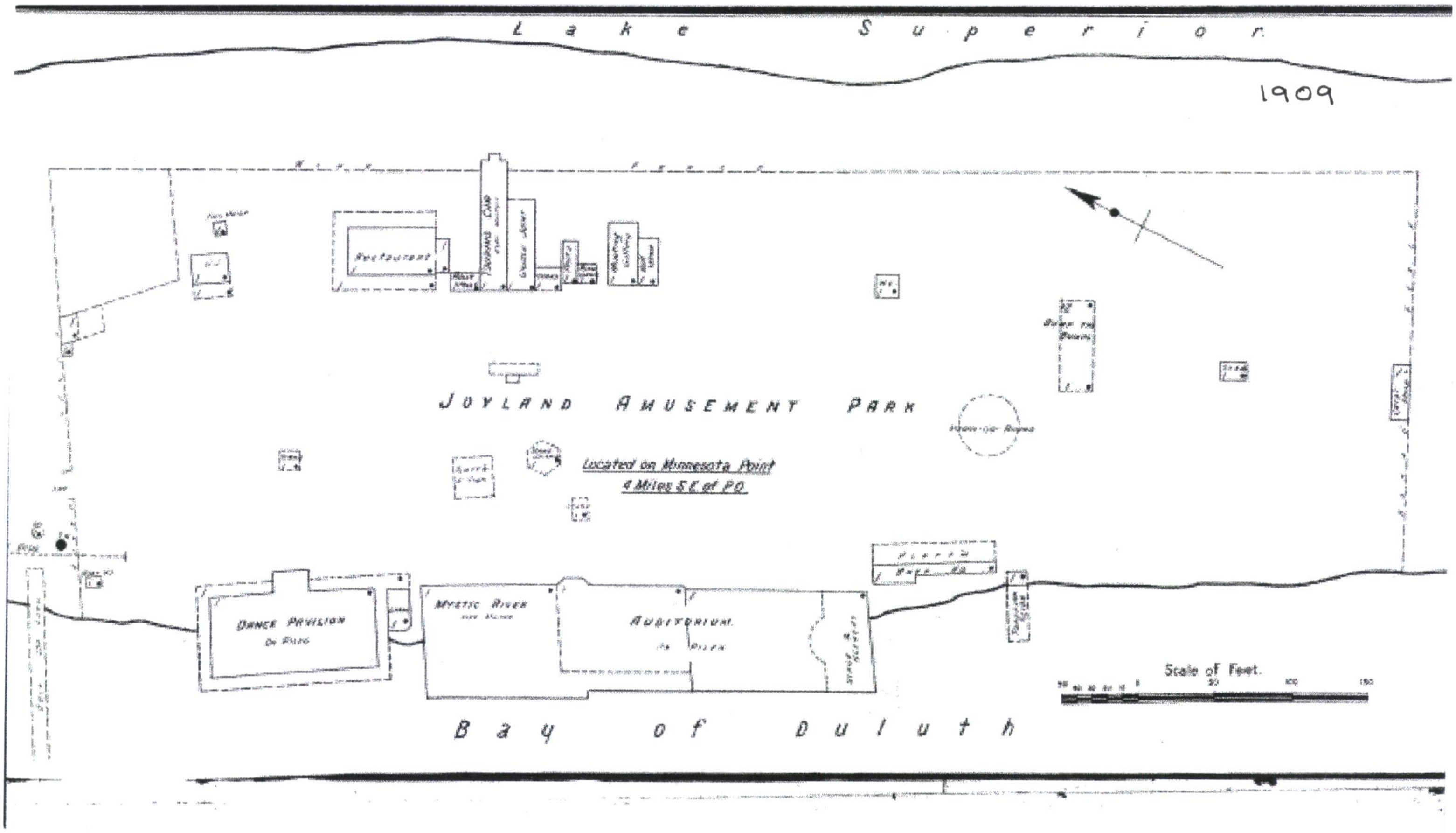

PINE OR 19TH ST.
60'
STORAGE
CAR BARN
CONCRETE FLOOR
DULUTH TRACTION CO.
MINNESOTA
AV.
INTERSTATE
CAR REPAIR SHOP
TROLLEY HOSE CAR
D
1826
1830
1834
1825
1911
10" W. Pipe
F.H.
UPPER
LOWER
DULUTH
DULUTH
Bay of Duluth

Blacksmith

1909

Trolley Hose Car
1500' 2.7" Hose
?

1909


Lake Superior
Restaurant
Carousel
Mystic River
Auditorium
Dance Pavilion
On Piles
JOYLAND AMUSEMENT PARK
Located on Minnesota Point
4 Miles S.E. of P.O.
Bay of Duluth
Scale of Feet.
50
100
150

E. HOW THE AERIAL TRANSFER BRIDGE WORKED

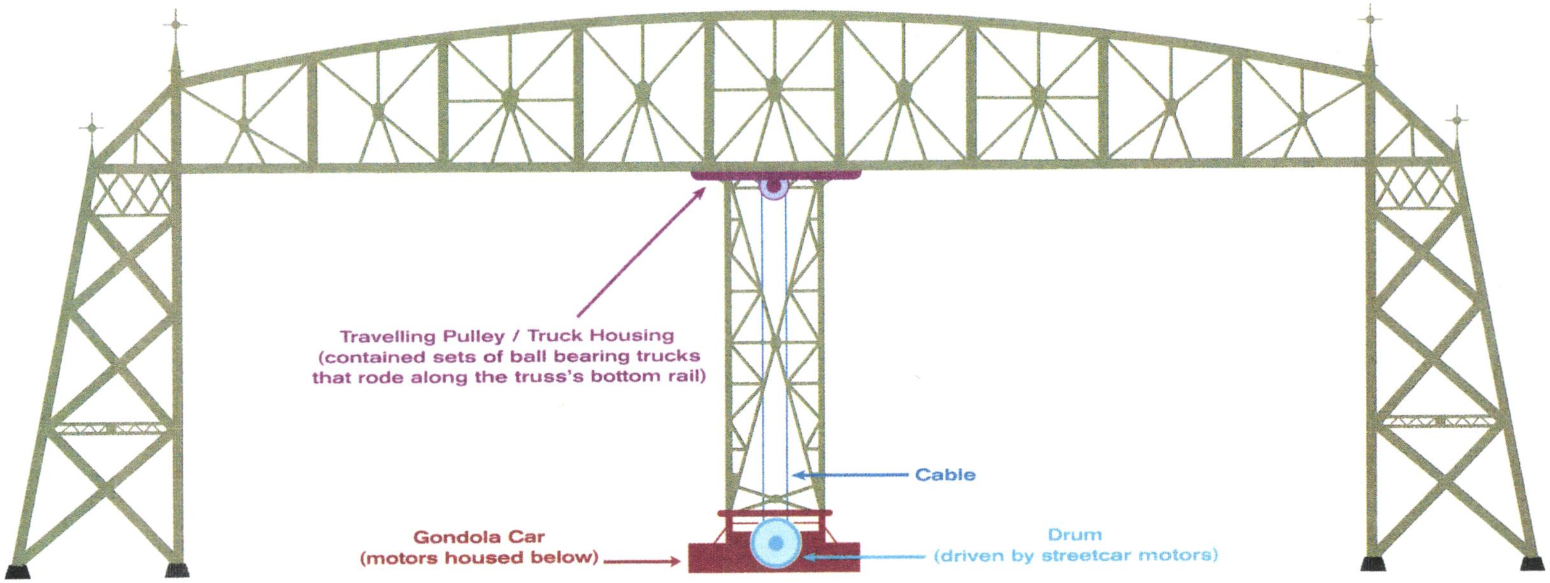
DRIVEN BY STREETCAR MOTORS AND PULLEYS

The operation of Duluth's aerial transfer bridge was surprisingly simple. The gondola car was suspended from the lower rail of the bridge's truss by a stiff-riveted steel hanger. At the top of this hanger was a "traveling pulley"—a truck holding many sets of wheels that sat in a groove along the truss. A one-inch steel cable wound through this traveling pulley and down to a large drum mounted on the side of the gondola car and back up.

Two fifty horse-power electric streetcar motors installed beneath the ferry turned the drum, making the the cables wind around it and up to the traveling pulley, setting the car in motion. Only one motor would operate at a time; the other was reserved as a back up. If the electric motors failed for any reason, operators could use a hand gear to move the car safely to shore and out of the way of oncoming vessels.

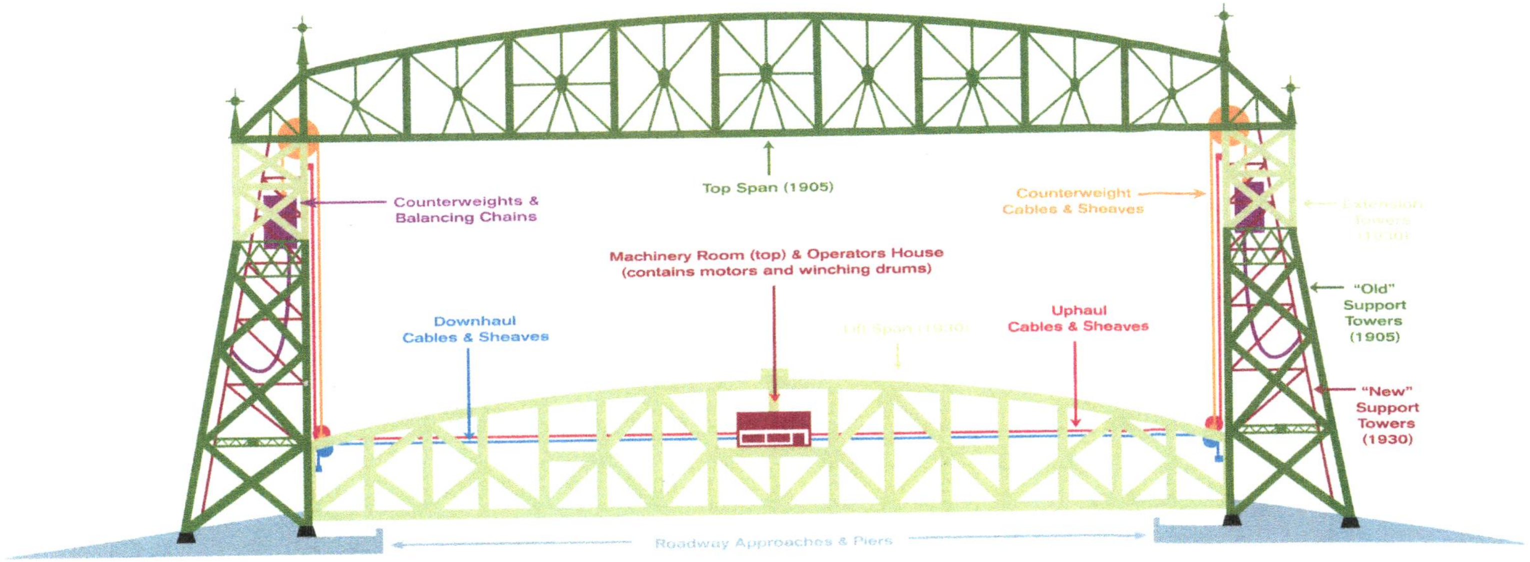
DULUTH'S AERIAL TRANSFER BRIDGE • 1905 – 1929

(POSITIONS OF CABLES, PULLEY, AND DRUM SLIGHTLY EXAGGERATED)


Travelling Pulley / Truck Housing
(contained sets of ball bearing trucks
that rode along the truss's bottom rail)
Cable
Gondola Car
(motors housed below)
Drum
(driven by streetcar motors)

DULUTH'S AERIAL LIFT BRIDGE • 1930 – 1985

(POSITIONS OF CABLES, SHEAVES, AND ANCHOR POINTS SLIGHTLY EXAGGERATED)


Top Span (1905)
Counterweights & Balancing Chains
Counterweight Cables & Sheaves
Extension Towers (1930)
Machinery Room (top) & Operators House (contains motors and winching drums)
"Old" Support Towers (1905)
Downhaul Cables & Sheaves
Lift Span (1930)
Uphaul Cables & Sheaves
"New" Support Towers (1930)
Roadway Approaches & Piers

When the operator starts the lifting process, he or she first sets in motion a sequence of events that must occur before the bridge actually moves.

First, a recorded message is played, informing tourists and pedestrians that a lift is going to be made.

After the message completes, the traffic lights cycle to yellow and then to red, gongs start sounding, and the "Warning: Restricted Area" lights on both ends of the bridge start to flash.

When the traffic lights turn red, an interlock releases and allows the operator to lower traffic gates. (Usually oncoming traffic gates go down first, allowing traffic to clear the bridge before the off-going gates are lowered). When all traffic gates are down, another interlock releases and gives a blue light on the control console which indicates that the bridge can now be raised.

Before the "raise" button is pushed, another operator steps outside on the catwalk and visually checks both sidewalks and the roadway to be clear of all persons and vehicles. When the bridge is clear, the operator checking the sidewalks give a "thumbs-up" to the operator running the bridge. The operator will then check the security cameras and press the "raise" button.

As the bridge starts up, the operator will monitor the cameras to ensure nobody runs up and gets on the bridge or is hanging on underneath. Once the bridge is too high for that to happen the operator relaxes a bit and monitors the lift.

Interstate Traction Co.—This company is a reorganization of the Minnesota Point Street Railway, chartered June, 1887, for 50 years. Annual meeting Apr. 15th.

CAPITAL STOCK, authorized, $50,000, issued, $25,000.

FUNDED DEBT.—First mortgage 6 p. c. gold coupon bonds, authorized, $50,000, issued, $40,000; dated May, 1899, due 1919; denom. $500; int. payable May and Nov. at office of St. Paul Title & Trust Co., of St. Paul, Minn., trustee of mortgage.

First mortgage bonds may be called for payment at 6 months' notice at 104 and accrued interest.

OPERATION—Year ending Oct. 31,

	1900.	1901.	1902.	Dec. 31, 1903.
Earnings from passengers..........				$15,839
" other sources............				2,349
Gross income......................	$8,640	$9,644	$15,627	18,188
Operating expenses................	6,445	6,208	9,853	15,298
Gross income less operating exps....	2,195	3,436	5,774	2,890
Deductions from earnings.				
Interest..........................	1,242	1,190	1,200	2,400
Net income........................	953	2,246	4,574	490

BALANCE SHEET.—Dated Oct. 31,

ASSETS.	1900.	1901.	1902.	1903.
Cost of road and equipment......	$36,692	$37,860	$38,677	$38,339
Other permanent investments.....				6,921
Real estate......................	4,353	4,501	*25,469	27,641
Cash............................	294	387	823	711
Bills and accounts receivable.....				2,886
Total.........................	$41,339	$42,748	$64,969	$76,498
LIABILITIES.				
Capital stock....................	$20,000	$20,000	$20,000	$25,000
Funded debt......................	20,000	20,000	20,000	40,000
Bills payable....................			18,000	4,500
Profit and loss (surplus)..........	1,339	2,748	6,969	6,998
Total.........................	$11,339	$42,748	$64,969	$76,498

*The company purchased 124 acres of land at end of line, for which it gave notes for $18,000. These notes have since been funded into first mortgage bonds.

PLANT AND EQUIPMENT—Miles of track (electric), 3.50; gauge, 4 ft. 8½ in.; 35 lb. T rail; 5 motor cars and 3 trail cars; power purchased.

PARKS AND AMUSEMENT RESORTS.—Oatka Beach.

OFFICERS.—Pres. Robert R. Dunn; V. Pres. H. O. Underwood; Sec. & Treas. A. W. Hartman.

DIRECTORS.—Robert R. Dunn, H. O. Underwood, O. C. Hartman, A. W. Hartman, C. F. Hartman.

GENERAL OFFICE, 216 West Superior St., Duluth, Minn.

Date of information, Apr., 1905.

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Interstate Traction Co.—This company is a reorganization of the Minnesota Point Street Railway, chartered June, 1888, for 50 years. Annual meeting Apr. 15.

CAPITAL STOCK, authorized, $50,000, issued, $40,000.

FUNDED DEBT.—First mortgage 5 p. c. gold coupon bonds, authorized and issued, $70,000; dated May, 1905, due 1925; denom. $500; int. payable May and Nov. at office of N. W. Trust Co., of St. Paul, Minn., trustee of mortgage.

First mortgage bonds may be called for payment at 6 months' notice at 104 and accrued interest.

OPERATION—Year ending Oct. 31,

	1901.	1902.	Dec. 31, 1903.	1905.
Earnings from passengers..........			$15,839	$19,928
" other sources............			2,349	1,762
Gross income......................	$9,644	$15,627	18,188	21,690
Operating expenses................	6,208	9,853	15,298	11,095
Gross income less operating exps....	3,436	5,774	2,890	10,595
Deductions from earnings.				
Interest..........................	1,190	1,200	2,400	
Net income........................	2,246	4,574	490	

BALANCE SHEET.—Dated Oct. 31,

ASSETS.	1900.	1901.	1902.	1903.
Cost of road and equipment......	$36,692	$37,860	$38,677	$38,339
Other permanent investments.....				6,921
Real estate......................	4,353	4,501	*25,469	27,641
Cash............................	294	387	823	711
Bills and accounts receivable.....				2,886
Total.........................	$41,339	$42,748	$64,969	$76,498
LIABILITIES.				
Capital stock....................	$20,000	$20,000	$20,000	$25,000
Funded debt......................	20,000	20,000	20,000	40,000
Bills payable....................			18,000	4,500
Profit and loss (surplus)..........	1,339	2,748	6,969	6,998
Total.........................	$41,339	$42,748	$64,969	$76,498

*The company purchased 124 acres of land at end of line, for which it gave notes for $18,000. These notes have since been funded into first mortgage bonds.

PLANT AND EQUIPMENT—Miles of track (electric), 3.50; gauge, 4 ft. 8½ in.; 35 lb. T rail; 5 motor cars and 3 trail cars; power purchased.

PARKS AND AMUSEMENT RESORTS.—Oatka Beach.

OFFICERS.—Pres. Robert R. Dunn; Sec. & Treas. A. W. Hartman.

DIRECTORS.—Robert R. Dunn, O. C. Hartman, A. W. Hartman, C. F. Hartman.

GENERAL OFFICE, 216 West Superior St., Duluth, Minn.

Date of information, Jan., 1906.

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Park Point Traction Co.—Runs from Aerial Bridge to Duluth Boat Club. Population served, 1,500. 1914

TRACK AND EQUIPMENT.—Miles of track, 7; 7 motor cars, 7 other cars, 1 snow plow.

OFFICERS.—Pres. Robt. R. Dunn, New York City; V. Pres., Gen. Mgr. & Sec. J. B. Crane; Treas. Oscar Mitchell; Mast. Mech. John Nybergh; Roadmaster, John Cassidy.

GENERAL OFFICE, Box 779, Duluth, Minn.; repair shops, Park Point.

MINNESOTA POINT ST. RY.
5-19-1896: H.O. UNDERWOOD, BOSTON, AND CLIENTS OF DUNN BROTHERS, PHILADELPHIA, WERE THE PURCHASERS.

MINNESOTA POINT ST. RY
1898 3.5 MILES TRACK 6 HORSECARS 15 HORSES. G.A. LELAND PRES & GEN MGR; O.C. HARTMAN VICE PRES; F.W. SULLIVAN, SECRETARY; A.W. HARTMAN, TREAS.

PARK POINT TRACTION CO.
INTERSTATE TRACTION CO.
MINNESOTA POINT ST. RY.

1890-1892
Minnesota Point St. Ry.

Purchased seven DSR Horse Cars: 8-16-1890 #4,14; 12-18-1891 #1; 5-11-1892 #5,7,10,13.

1899
Reorganized as Interstate Traction Co.

May: purchased four DSR ST Closed Motors #63-66. Built by LaClede 1891 or 1892. Renumbered #1-4.

1900

Mar: purchased two DSR ST Open Trailers #93-94, ex MLI Co. #3-4.

1902

May: purchased two DSR ST Open Cars #91-92, ex MLI Co. #1-2. #91 was a Trailer renumbered ?. #92 was a Motor renumbered #5.

1902 U.S. Census: four Closed Motors (#1-4), one Open Motor (#5), and three Open Trailers (#?-?).

1905

Jun 12: #10-11 DT Closed Motors received from St.Louis Car Co., their order #525 dated 1-16-1905.

1906

May 31: purchased three DSR (ex SRTR) ST Closed Motors #110,117,122. (Invoice dated 6-30-1906.) #110,117 built by Northern 1891; #122 built by LaClede 1892. Some or all of these cars may not have been vestibuled.

May 15: purchased six SPCR ST Open Trailers #221,226,229,239-241 built by LaClede in 1888 and 1890. A photograph shows one of them as #16.

1907

May: #5 Open Motor sold to City of Duluth for conversion to a fire-fighting streetcar.

1907 U.S. Census: 18 passenger cars, 2 freight trailers and 1 snow plow; total 21 cars. Ten motor cars (nine with two motors and one with one motor) and 11 trailers. Speculation: nine passenger motor cars (#1-4,10-11,110,117,122), one snow plow motor car; nine open passenger trailers (3 ex-DSR and 6 ex-SPCR) and two freight trailers.

1911

Car orders placed during the year as listed in the Electric Railway Journal:

two	DT Closed Passenger	29'0" long	Danville Car Co.
one	ST Box Freight	24'6" long	Company Shops
one	ST Snow Plow	26'0" long	Company Shops
four	ST Flat Cars	22'0" long	Company Shops

Jun 8: #20-21, DT Closed Passenger Motors received, ordered from Danville in Mar.

1913

Reorganized as Park Point Traction Co.

1914

As of Apr 15: seven passenger motor cars, seven other cars and one snow plow. Speculation: seven passenger motor cars: #4,10-11,20-21,110 or 117,122; seven other cars: #13 tower car from 110 or 117, six open trailers #14-19 ex-SPCR; one snow plow: #12 converted from one of #1-3.

1917

Sep 1: PPTC sold to DSR. Cars included in DSR roster were: #4, #10-11 renumbered #285-286, #20-21 renumbered #287-288, #12 snow plow renumbered #5/147 and #13 tower car renumbered #3/148.

1919

Mar 31: #4 sold for scrap to West End Scrap Iron & Metal Co.

1930

Apr: #3/148 (ex #13) scrapped.

1931

Jun: #288 (ex #21) body sold.
Jun: #5/147 (ex #12) scrapped; one freight (flat) trailer (unused and derelict) and the Park Point Fire Car (ex #5) were retired.
Jul: #285-287 (ex #10-11,20) bodies sold.

JIM KREUZBERGER
3-18-80

WE ALSO HAVE A BILL OF SALE FOR TWO OTHER UNIDENTIFIED HORSECARS THAT WERE SOLD TO MPSR ON 8-1890 FOR $250 EACH.

THIS MAKES A TOTAL OF 9 DSR HORSECARS SOLD TO MPSR.

13 Tower Car from 110 on
117

12 Dream Plan from
one of 1-3

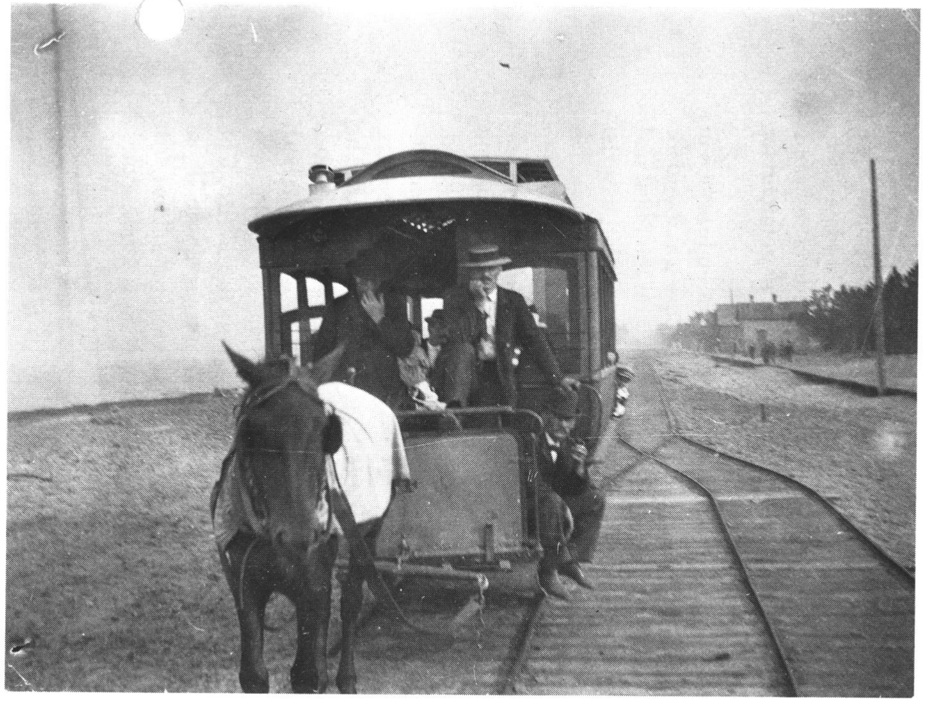
6 Open Trailer
14-19 exc SPCA

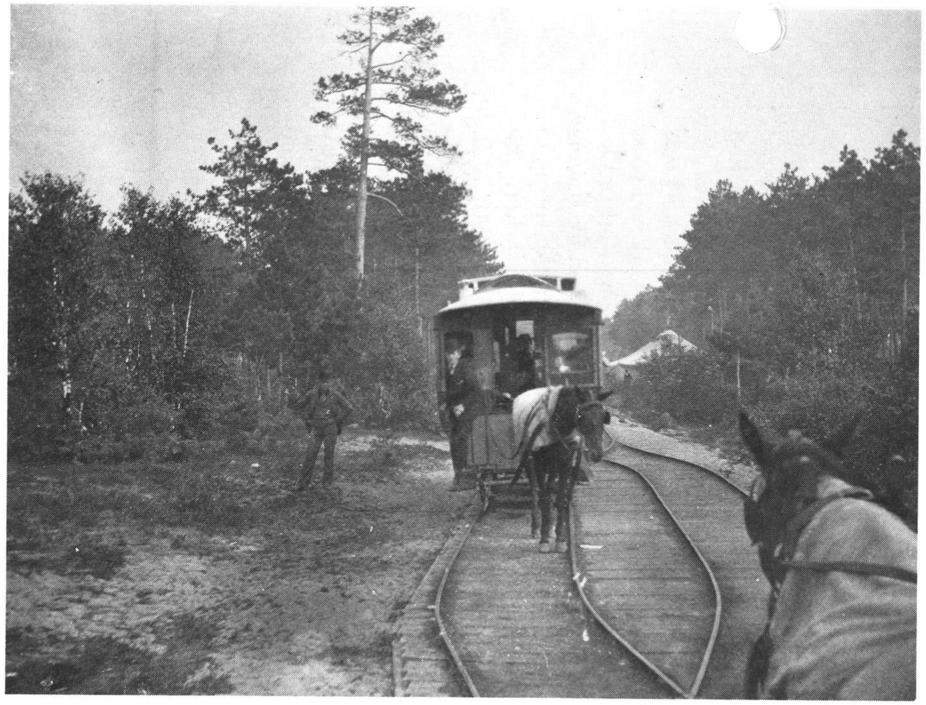
Shops. SM JUNE 30th, 1906 1906

Interstate Traction Co.,

TO DULUTH STREET RAILWAY CO. DR.

To three cars, 110, 117, 122 @ $450.00 each as per letter of Mr. C.G.H. 5/31/6			1350 00
To labor an material used in painting and repairing above cars as per instructions from Mr. Hartman.			
Labor.			111 77
MATERIAL			
Miscel. machine bolts, nails, screws, nuts		3.70	
1 1/2 Qt. white lead paint.		58	
1 Qt. No. 2 truck color.		38	
1 do black paint		20	
1 book aluminum leaf.		07	
2 lbs Okonite tape	@.72	1 44	
6 lbs friction tape	40	2 40	
1 lb. P&B tape		33	
1 lb. solder		25	
27 ft. Twin wire No. 12	02	54	
75 ft. No. 12 B&S stranded cable	04	3 00	
84 ft. 1 1/2" cotton hose	06	5 04	
810 ft. No. 4 R. C. wire soldd.	03	24 30	
40 ft. No. 14 R. C. light wire	01	40	
1 car step		75	
3 signal bells	1.00	3 00	
15 ft. rawhide reg. cord	@2 1/2	38	
12 3/8 x 1/2 fender pins	02	24	
26 lbs brass gate brackets	20	5 20	
3/4 lb. 3/4 x 3 rubber	45	34	
1 brake rod		1 10	
6 fender rods	15	90	
3 fender staffs	1.00	3 00	
6 fender dogs	38	2 28	
3 brake staffs and handles	4 00	12 00	
3 floor plates for brake staffs	50	1 50	
3 headlights	3 00	9 00	
3 overhead switches	1 00	3 00	
3 New car fenders	6 25	18 75	
2 brass gong pins	10	20	
2 steel gong pins	06	12	
3 K. 2 Controllers	112.00	336 00	
Soft steel, round, square, etc.		2 25	
6 brake rod hangers		1 68	
2 long brake rods	1 10	2 20	
3 short brake strains	1 63	4 89	
3 3/4 x 4 brake rod pins	10	30	
3 5/8 x 1 1/2 split keys		08	
3 steel gongs complete with strips and iron hammers.	1 25	3 75	455.56
			$ 1917.32



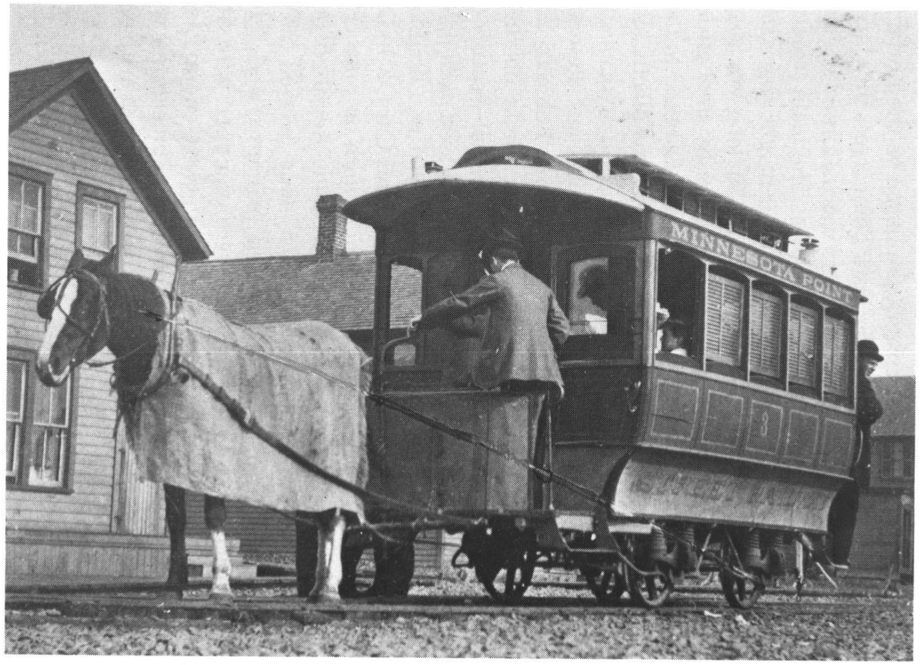


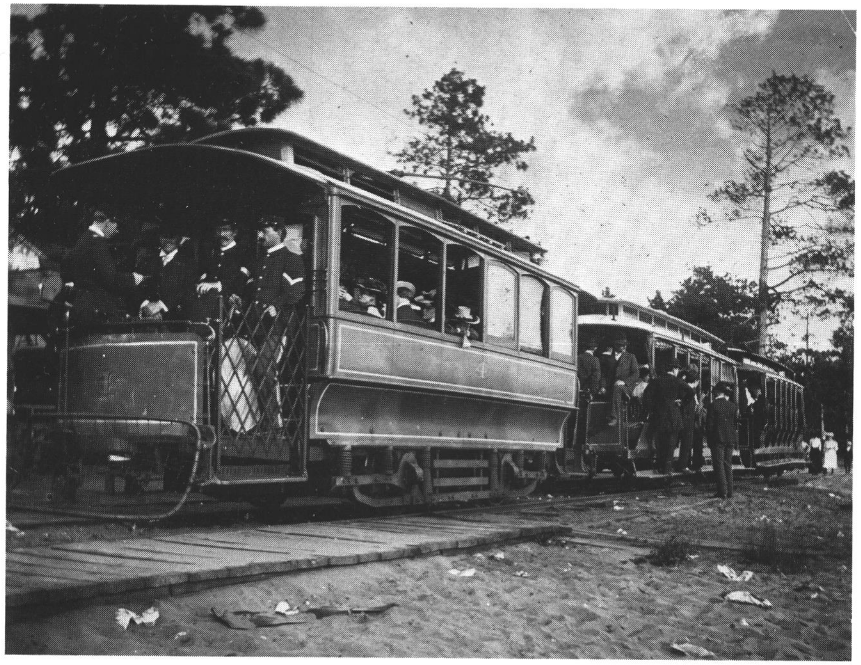
Above left and right: Two views of Minnesota Point St. Ry. horsecar operations in August, 1894. Scene at the left is at the north end of the line, while that on the right is at the south end. Note the plank walkway between the rails necessary to provide a sure footing for the horses.

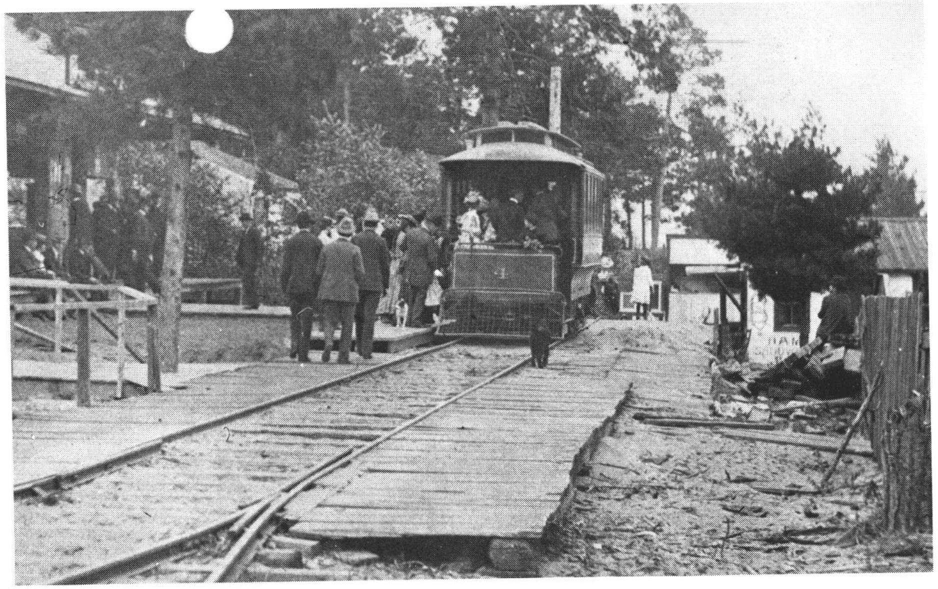
Below left: Minnesota Point St. Ry. horsecar 3 in the 1890's.

Below right: Interstate Traction Co. closed motor car 4 with an open trailer, and open motor car 5 at the 43rd St. end of the line.

(All photographs Wayne C. Olsen collection)

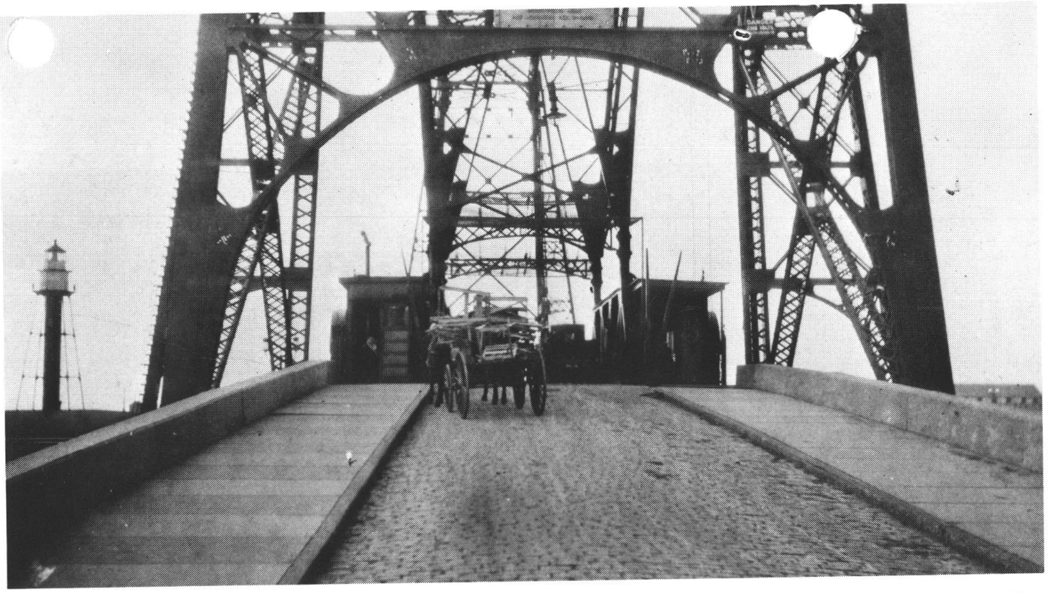






Above left: ITC closed motor car 4 at the 43rd St. end of the line.

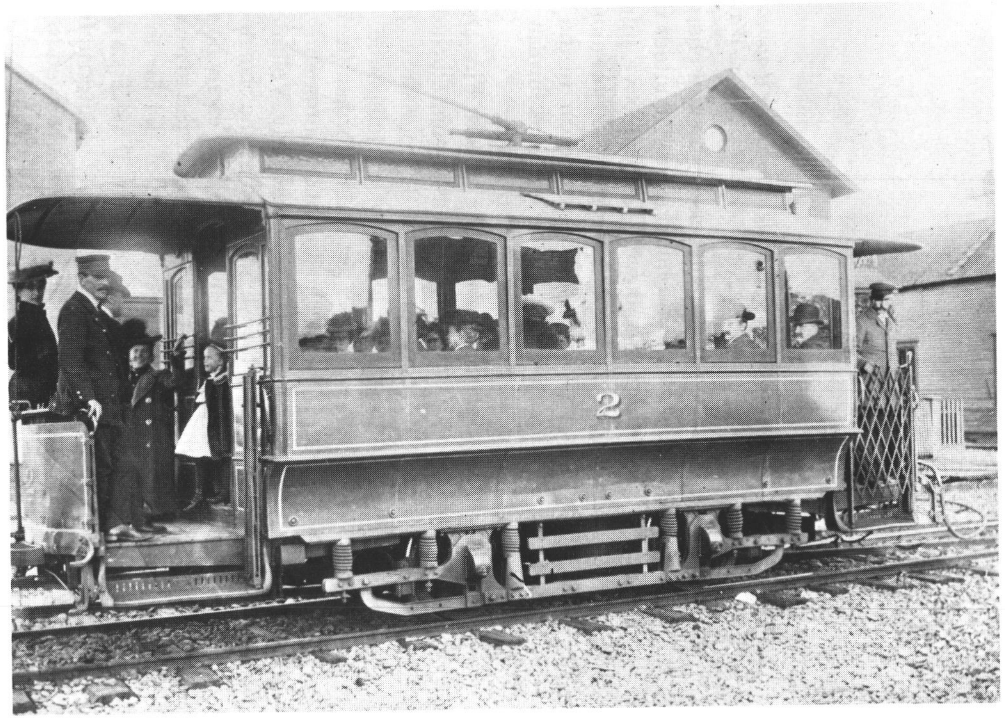
Below left: ITC closed motor car 2 at a passing siding on the north end of the line.

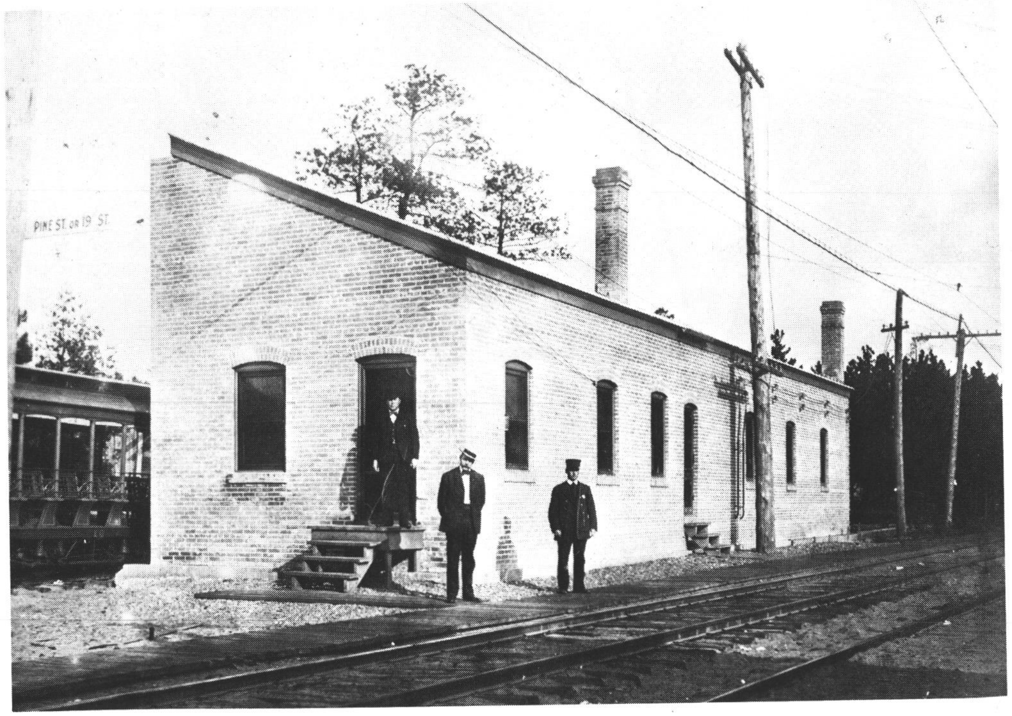


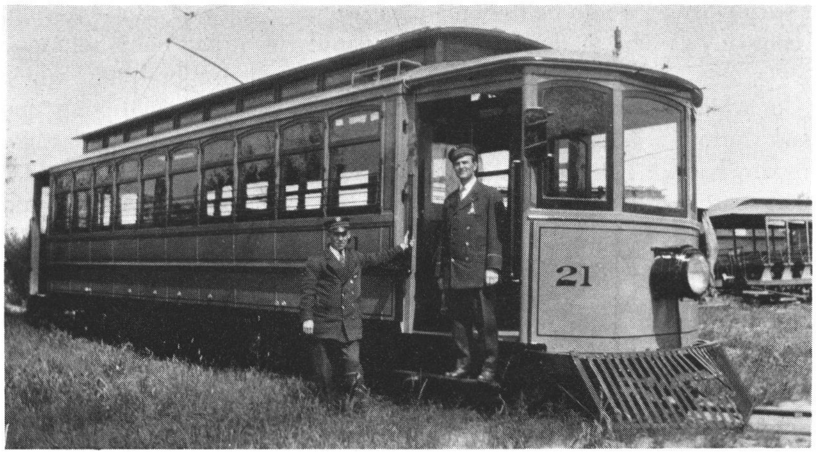
Above right: The Duluth approach to the Aerial Bridge showing the ferry car loading teams and passengers.

Below right: The new carhouse on the east side of Minnesota Ave. at 19th St. about 1907. Note the main line has been double-tracked. Open car 16 can be seen on a storage yard track to the left.

(All photographs Wayne C. Olsen collection)



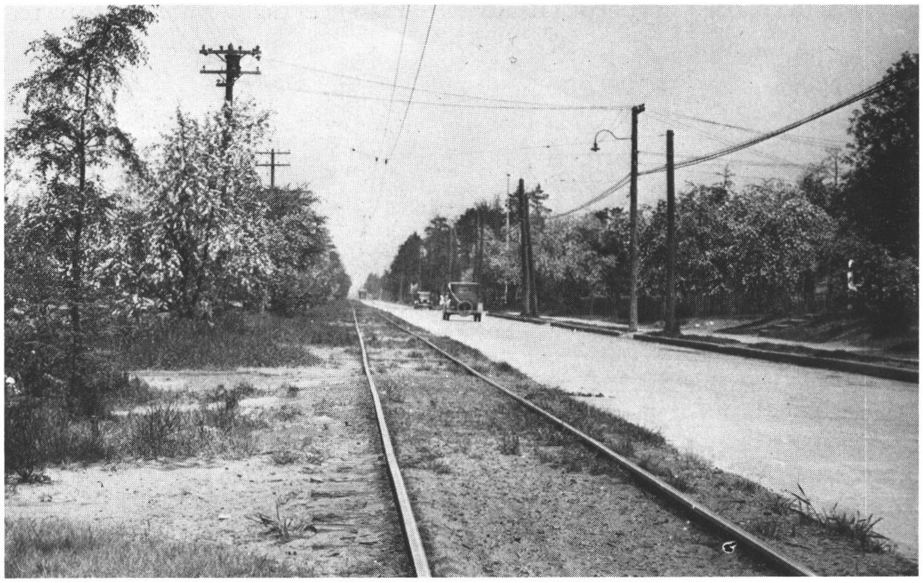




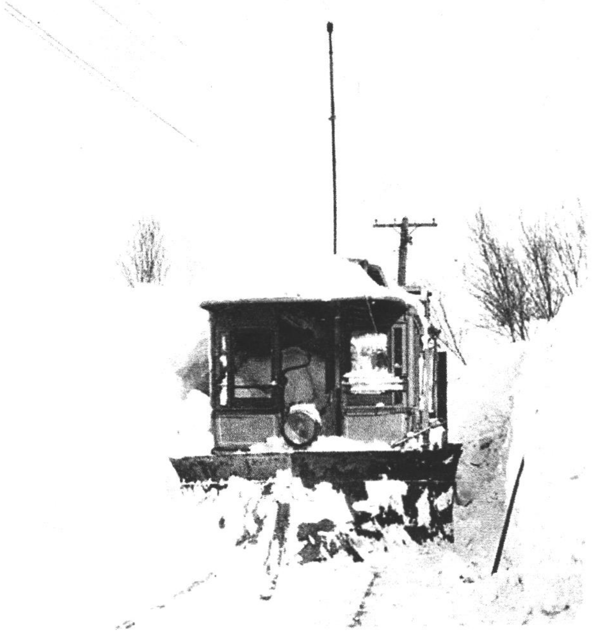
Left: New ITC car 21 on the carhouse ladder track. A former St. Paul City Ry. open cable trailer is visible to the right.

Below: Track alongside Minnesota Ave. at 34th St., looking north, on June 16, 1927.

(Both photographs Wayne C. Olsen collection)



PPTC Snow Plow 12 at the 43rd St. end of the line fighting the type of blizzard which drained the company's meager treasury. Note the interior of the car is filled with snow. (Wayne C. Olsen collection)

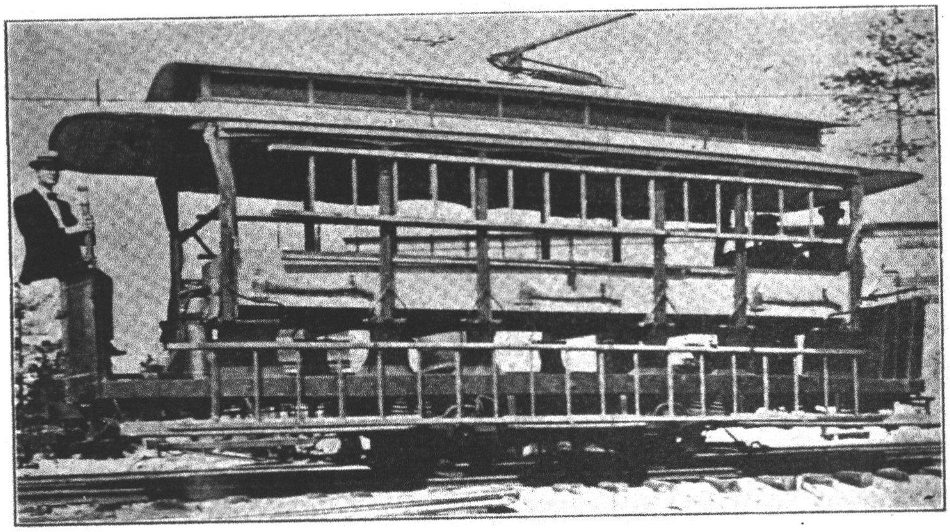


DULUTH'S UNIQUE FIRE CAR

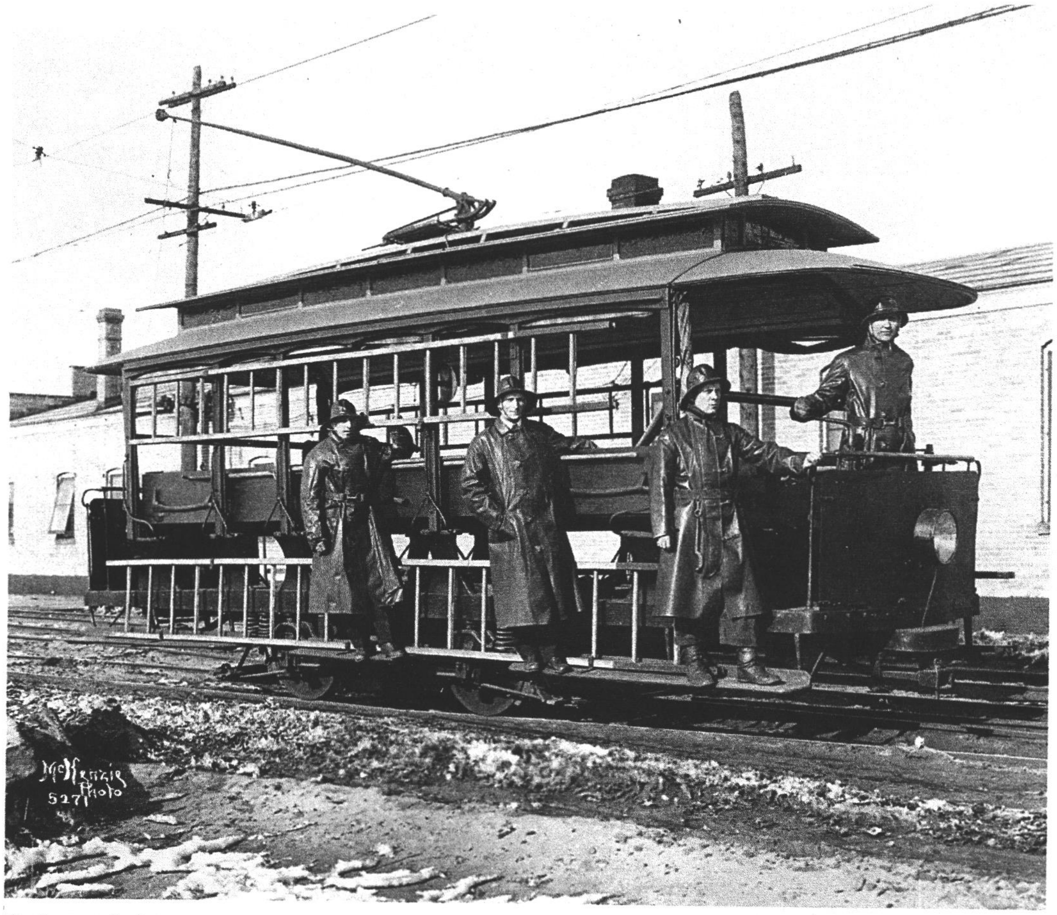
The city of Duluth, Minn., has a novel piece of fire-fighting apparatus consisting of an ordinary open street car, equipped with fire-fighting appliances. The car was one of the Interstate Traction Company's 26-ft. double-end open cars, equipped with two 30 h. p. motors. In the process of conversion the seats were removed and replaced with oak strips about the height of the seats, and on these strips was built a box in which to carry the hose. This box is the full width of the car and about 18 ft. in length. It is divided in the center, lengthwise, making two compartments, each capable of holding about 1,000 ft. of 2½-in. hose. The compartments have openings on each side so that whichever way the car is going to a fire the hose may be attached to the hydrant nearest the fire and a line laid up to it. At either end of the car and about a foot above the end of the hose box, is an iron roller over which the hose is run, thus causing it to clear the end of the car as well as to reduce the friction on the hose.

The car is equipped with 1,600 ft. of 2½-in. cotton rubber-lined hose; 6 fire-axes, carried in scabbards fastened to the outside of the hose box; 4 ladders, 12, 14, 16 and 20 ft. in length, carried on the outside of the car and fastened lengthwise to the car with iron clips at the bottom and straps at the top; 2 pike-poles, two long and two short, carried in the same way as the ladders, and 2 6-gal. chemical fire extinguishers. At the ends of the hose box are hangers for the play-pipes and nozzles.

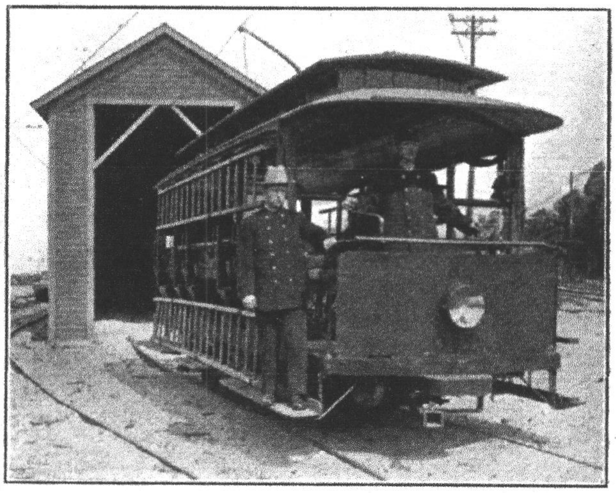
The necessity of having some such fire-fighting apparatus at the disposal of the fire department had long been felt owing to the peculiar construction of that part of the city known as Minnesota Point or Part Point. This is a narrow strip of land, composed entirely of sand and lake gravel, running from the north to the south shore of Lake Superior. On account of the soft nature of the soil the fire department had experienced great difficulty in getting to and from fires, as it is impossible for horses to haul any kind of a load through this sand and gravel. The street upon which the car line runs is practically the only thoroughfare in this part of the city. All of the buildings, 90 per cent of which are dwellings, are within from 50 to 300 ft. of the street. Hydrants are located every 500 ft. the entire length of the line. Arrangements have been made with the traction company to operate the car whenever necessary, the city's fire department maintaining a man at the company's car barn to run it at any time.

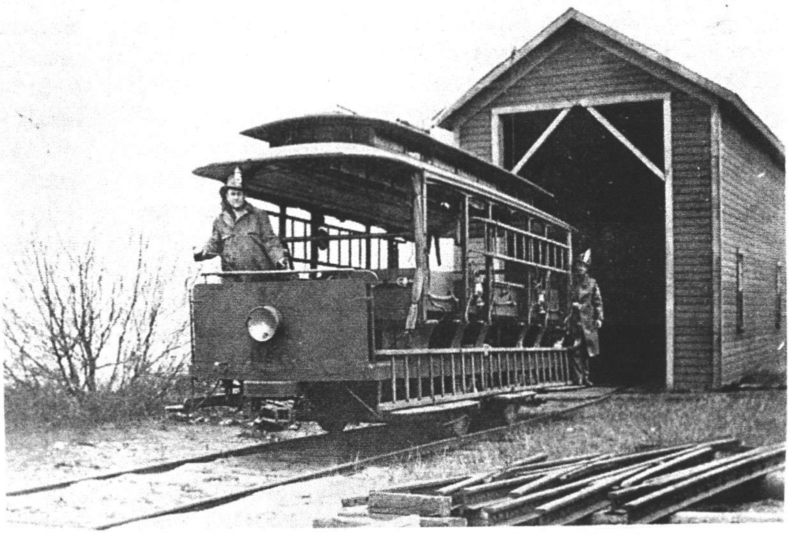


Open Car Fitted Up for Fighting Fire

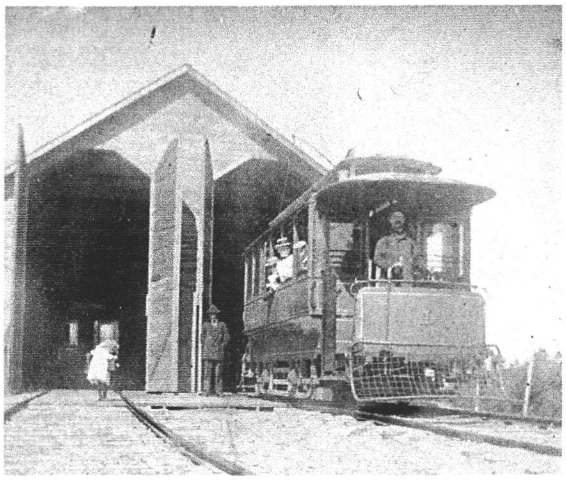


The famous Park Point fire-fighting streetcar as it appeared in 1915. Motorman is PPTC employee John Nyberg; at his right is William Forsyth, fire chief. (McKenzie Studios; Wayne C. Olsen collection)





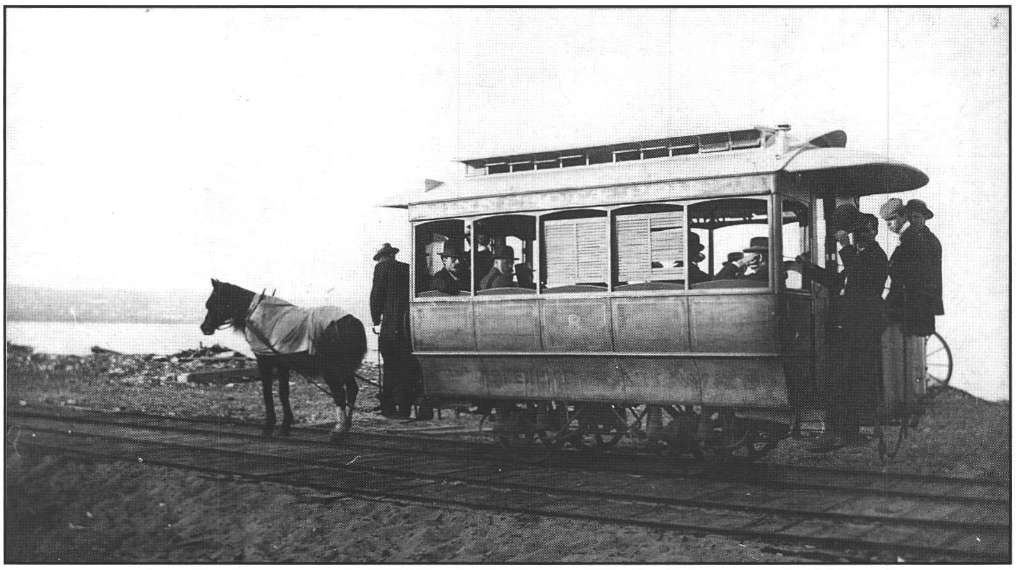
[redacted] *The fire car at the old carhouse after the building had been rebuilt to one track capacity, and the second track (used for outside stprage for several years) removed.*



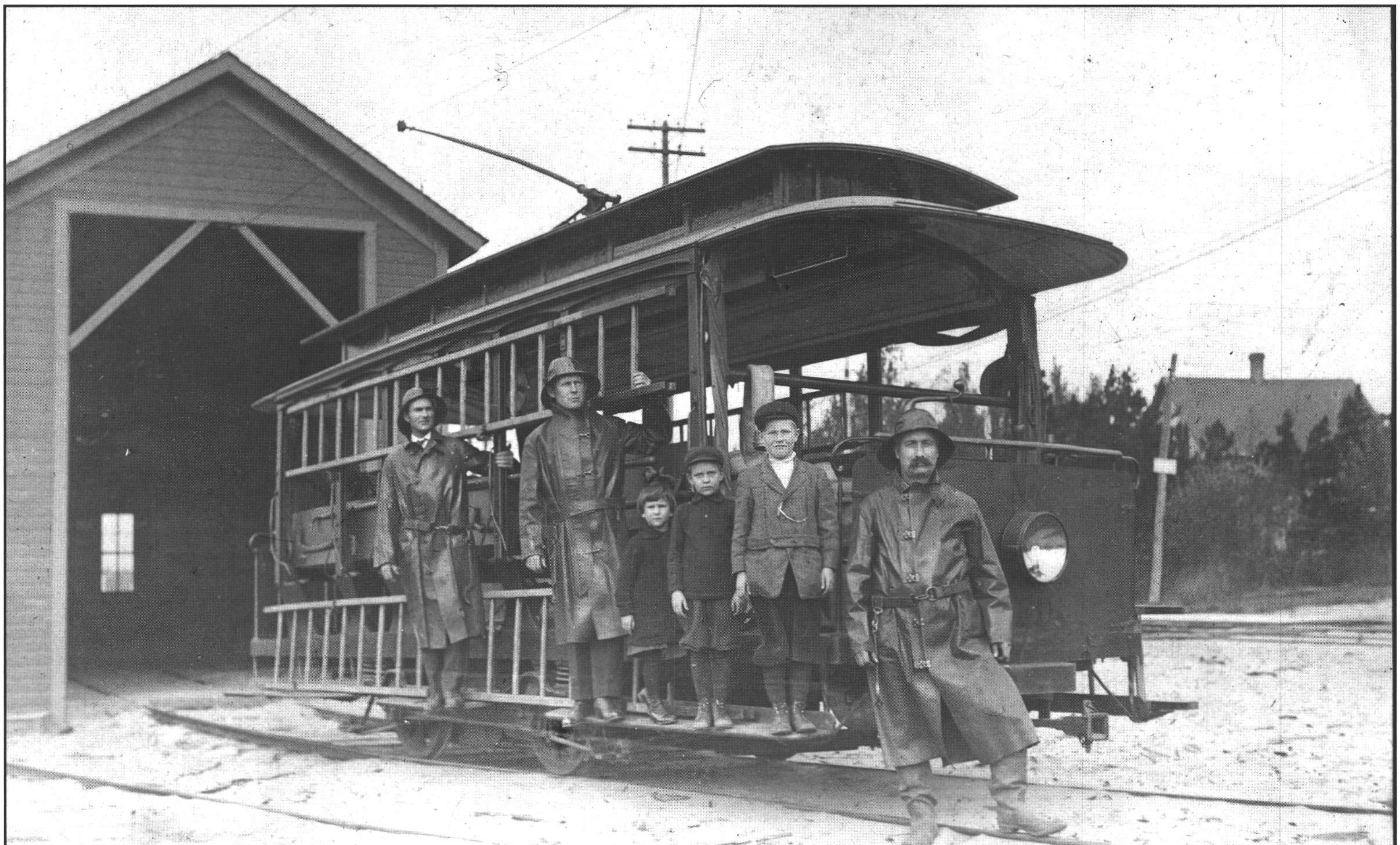
[redacted] *The original ITC two-track carhouse on the west side of Minnesota Ave. at 19th St.*

PARK POINT

Of the handful of small independent companies later absorbed by Duluth-Superior Traction, the one that remained on its own the longest ran on Park Point, the long, narrow sand bar that separated Lake Superior from the Duluth harbor. As the Minnesota Point Street Railway, it ran horsecars (except during the winter) from 1889 to 1897. The Interstate Traction Company took over the operation in the spring of 1898 and set out to electrify what was by then the last horsecar line in Minnesota. The first electrics ran in June 1899. The outer end of the line was always at Oatka Beach. In 1906 the beach became more of a destination with the opening of the "White City" amusement park. Not a success, it lasted only until 1909, when all the buildings were demolished except the dance hall. Only one or two blocks wide, every part of Minnesota Point was close to the streetcar, which led to its one-of-a-kind streetcar fire engine. In 1913 the company was reorganized as Park Point Traction. Duluth-Superior Traction bought it in 1917. With the completion of the aerial lift bridge in 1930, through service to downtown began. The Park Point line lasted only until 1931.

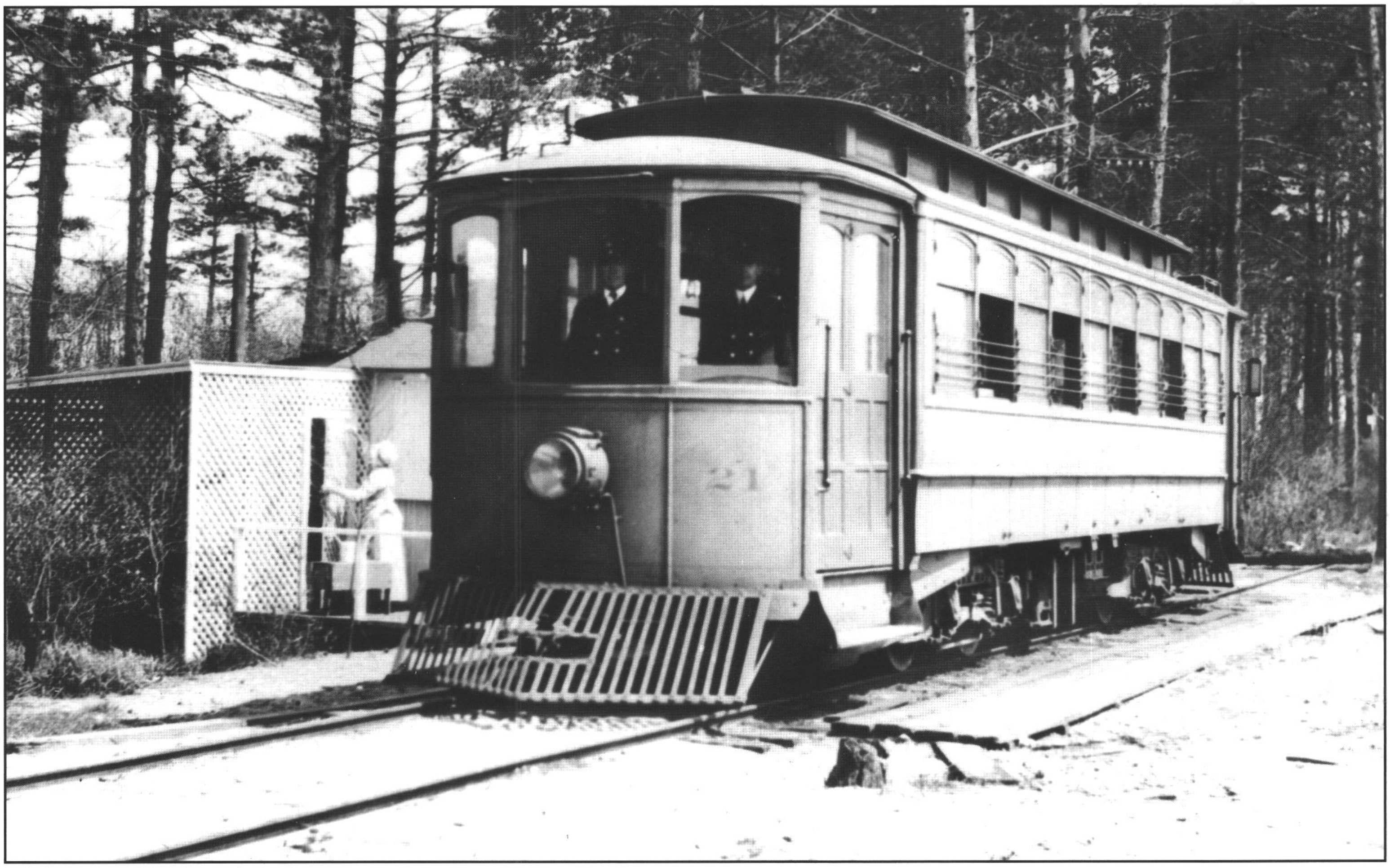


Horsecars ran longer on Park Point than anywhere else in the state, finally giving way to electrification in 1899. North East Minnesota Historical Center collection



Park Point's famous fire streetcar. MSM collection.

W.T.C.



Car #21 at Oatka Beach, the outer end of the line. MSM collection.
Below: The Park Point carhouse. MSM collection.
Opposite page: Summer and winter on the Point. The upper photo shows the 1899 transition from 3 foot 6 inch horsecars to standard gauge electric cars. Rather than the usual fix of moving one rail, the company built an entirely new track. Pete Bonesteel collection.